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JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

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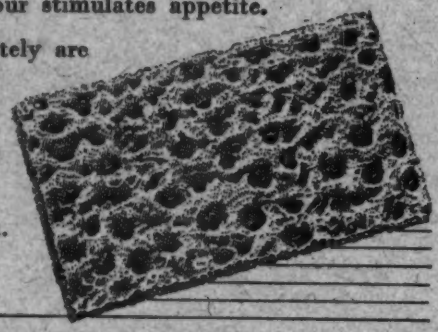

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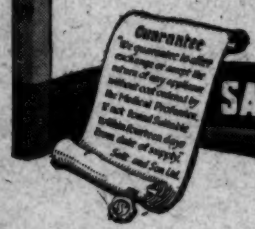

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 6 1947

STREPTOMYCIN AND TUBERCULOUS MENINGITIS IN CHILDREN

PRELIMINARY NOTE

BY

ROBERT DEBRÉ ST. THIEFFRY ED. BRISSAUD AND H. NOUFFLARD

(From the Clinique Médicale des Enfants, Hôpital des Enfants Malades, Paris)

It is neither usual nor generally desirable to publish work on a new treatment before proof of its effectiveness and a knowledge of its limitations have been obtained. But the problem of tuberculous meningitis and of the first treatment known to have any effect on the disease is so important that it seems legitimate to draw attention to our preliminary trials, if only to point out our mistakes to our colleagues. We believe we have at the Hôpital des Enfants Malades in Paris one of the richest sources of experience in this field; the investigation is being carried out by a team of paediatricians, ophthalmologists, neurosurgeons, pathologists, bacteriologists, and chemists. In this article our preliminary work is being reported for the first time.

Importance of Early Diagnosis

We would at once emphasize that we make every effort to detect tuberculous meningitis in children at an early stage in order to be able to treat it in good time. Formerly no great haste was shown in obtaining the depressing confirmation of the disease in cases where meningitis was suspected and there was a risk that a lumbar puncture might even bring it on or be accused of so doing. It is known that tuberculous meningitis often becomes apparent in children at an early stage of the infection: out of 51 cases in our first series in which we were able to observe the onset of allergy 42 developed tuberculous meningitis within six months. The symptoms which should strike one at this stage are headache, vomiting (though this may be only occasional), sudden anorexia, fever, which is always present, and emaciation—but this last to a lesser degree only. If the tuberculosis is of longer duration, as was the case with 22 of our small patients, it is these same symptoms (with the addition of personality changes and insomnia), and here again not the emaciation, which should first attract the attention.

In acute or subacute miliary tuberculosis, which is often so difficult to detect and which is revealed by radiological examination of the lung, latent tuberculous meningitis is not uncommon. We therefore emphasize the fact that it is essential in such cases to employ lumbar puncture as a systematic routine procedure.

In these circumstances we cannot insist sufficiently on the absolute necessity, at the present time, of employing lumbar puncture in all cases where there is the slightest doubt, and, in some instances, of making repeated punctures. The examination of the fundus oculi, an excellent exploratory method, should also be widely used. Choroidal tubercles and changes in the optic disk are frequently discovered. (According to data supplied by our colleagues Monbrun and Lavat, there were 18% of choroidal changes and 47% of disk changes in the cases of meningitis alone, 75% of choroidal tubercles and 56% of disk changes in the cases of miliary tuberculosis with established meningitis, no disk changes and 50% of chorio-retinal changes in the cases of miliary tuberculosis without meningitis.) The detection of these lesions is useful in determining the tuberculous nature of a neurological disturbance of which the diagnosis is indefinite, and observation of them makes it possible, to a large extent, to determine the effect of the treatment.

The importance of these indications lies in the fact that the immediate prognosis of tuberculous meningitis depends chiefly on early diagnosis, and also, undoubtedly, on the energy and duration of streptomycin treatment. Can the decision whether to employ streptomycin therapy, which carries with it grave risks, be based on direct observation of the bacillus in the cerebrospinal fluid? Our answer is "No." In our own statistics, which include 90 definite cases of tuberculous meningitis, direct examination showed acid-alcohol-resistant bacilli in 41 instances only—that is, in about half the cases. Nor can the line to be followed be based absolutely on negative Pirquet's reactions: in four out of 90 cases Pirquet's reaction was negative, but the intradermal reaction was positive. These facts, which have been a matter of common knowledge for some time, have, up to date, been of purely theoretical interest, but they have now come to be of great practical value. Such findings as these are not sufficient reason for refusing to undertake streptomycin therapy when the clinical conditions demand immediate energetic and prolonged action.

The decision is therefore taken after thorough discussion in which all the diagnostic elements are considered: history, knowledge of a recent contact, mode of onset, evolution, cytochemical abnormalities of the cerebrospinal fluid, and even, where necessary, examination of the ventricular fluid, which we found valuable in two cases in infants.

It is possible to determine the exact nature of the disease, with some delay but with absolute certainty, from the results of cultures of the cerebrospinal fluid on Loewenstein's medium, a test which practically never fails.

Prognostic Factors

The Clinique Médicale des Enfants has handled a very large number of patients, who often come from great distances, travelling in uncomfortable conditions, and presenting at very varied stages of the disease. This explains why we finally decided to base our preliminary conclusions on

Details of Cases of Tuberculous Meningitis Treated with Streptomycin

Case No.	Sex	Age (Years)	Weight (Kg.)	Diagnosis Confirmed	X-ray Findings in Lungs	Fundus Oculi	Dosage (g.)		Days of Treatment		Complications	Last Lumbar Puncture		Outcome	Days after Starting Treatment	Remarks
							I.M.	Spinal	Effective	Total		Cells per c.mm.	Protein (g./100 ml.)			
1	M	3	12	Clinically	Normal	No tubercles seen	104	2·2	105	180	None	1	0·45	Alive	240	Operated on for hydrocephalus; well
2	F	1	9	"	"	"	57	3·5	60	135	Eruption	20	1·20	Dead	135	Relapse
4	F	2	12	Bacteriologically	Primary infection	"	53	2·4	45	90	"	407	4·00	"	90	"
6	M	11	28	"	Normal	"	93	3·5	40	90	None	15	0·60	"	90	Relapse; operated on for hydrocephalus
7	F	9	20	"	Primary infection	"	60	1·7	42	85	"	60	1·40	"	85	Relapse
8	F	15	42	"	Miliary tuberculosis	"	320	4·0	150	210	Deafness	3	0·85	Alive	210	Well
9	F	14	38	"	Normal	Not examined	135	2·5	37	66	"	272	1·20	Dead	66	Died after slight improvement
10	M	3	11	"	Primary infection	"	14	1·2	15	15	None	71	0·60	"	15	Died without marked remission
11	M	9	21	"	Normal	No tubercles seen	32	1·8	30	30	Eruption	18	0·60	"	30	"
12	F	Under 1	4	"	Miliary tuberculosis	Not examined	2	1·4	7	7	None	161	—	"	7	Rapidly fatal issue
13	F	8	18	"	Normal	No tubercles seen	100	1·1	45	55	Eruption	141	3·60	"	55	Died after partial remission
17	F	5	15	Anatomically	Primary infection	"	86	3·0	48	81	Eruption; convulsions	148	1·30	"	81	Died in convulsions
18	F	4	12	"	Normal	"	12	0·9	8	8	None	8	0·80	"	8	Died after partial remission
19	F	4	10	Bacteriologically	"	"	37	1·1	23	23	Eruption; convulsions	57	1·65	"	23	Died without marked remission
20	F	1	9	Clinically	Primary infection	"	105	1·5	111	180	Eruption	8	0·30	Alive	180	Well
21	M	6	15	Bacteriologically	Normal	"	64	0·5	32	32	None	208	1·40	Dead	45	Hydrocephalus not operated on
23	F	3	12	"	—	"	7	0·5	5	5	"	29	1·00	"	60	Removed by her family 5 days after treatment started
24	M	3	12	"	Primary infection	"	145	6·0	150	180	Deafness; convulsions	4	1·30	Alive	180	Well
25	M	2	11	"	Normal	Not examined	28	0·6	21	21	None	161	1·80	Dead	21	Operated on for hydrocephalus
26	F	14	40	"	Miliary tuberculosis	Choroidal tubercles	274	5·0	150	180	Eruption; deafness	5	1·80	Alive	180	Well
27	M	7	20	"	Normal	No tubercles seen	269	3·2	105	135	Eruption	29	0·80	"	180	Condition good
29	M	5	15	"	—	"	17	1·1	8	8	None	—	—	Dead	8	Rapidly fatal issue
30	M	2	11	"	—	Not examined	30	1·5	20	20	Eruption; convulsions	—	—	"	20	Died in convulsions
31	M	7	25	"	Normal	No tubercles seen	45	1·9	19	19	Eruption	92	1·60	"	36	Died rapidly without noticeable improvement
32	F	4	14	"	Miliary tuberculosis	Choroidal tubercles	162	4·5	97	141	Convulsions	29	1·80	"	141	Hydrocephalus operated on
33	F	Under 1	7	Anatomically	Primary infection	Not examined	21	1·3	17	17	None	365	1·40	"	17	Hemiplegia; gross cerebral tubercle
34	M	9	21	Bacteriologically	—	"	15	0·5	5	5	"	161	2·80	"	5	Rapidly fatal issue
36	F	2	9	"	Primary infection	"	10	0·5	5	5	"	104	1·60	"	5	"
37	F	4	16	"	Normal	No tubercles seen	12·5	4·0	105	135	Eruption	0·2	0·20	Alive	165	Condition very good
38	M	1	8	"	Primary infection	"	12·5	1·1	11	11	None	21	0·25	Dead	35	Hydrocephalus operated on
39	F	7	18	"	Normal	"	80	1·8	36	80	Deafness	14	5·60	"	90	Died after partial remission
40	M	9	22	"	Primary infection	"	267	4·7	120	165	Eruption	10	0·50	Alive	165	Condition good
42	M	12	29	"	Normal	"	271	3·6	120	135	Eruption; deafness ±	26	2·40	"	165	Condition fairly good
43	F	2	8	"	Miliary tuberculosis	Choroidal tubercles	12	1·2	11	11	Convulsions	232	3·20	Dead	11	Rapidly fatal issue
44	F	Under 1	9	"	Primary infection	No tubercles seen	25	1·0	21	21	None	280	1·90	"	21	Died without marked remission
45	F	11	23	"	"	"	15	0·6	6	6	"	158	3·80	"		Removed by her family
46	M	10	24	"	Normal	"	262	4·15	135	165	Deafness	21	1·80	Alive	165	Condition good
49	M	11	30	Clinically	Primary infection	"	180	4·0	97	120	Eruption; deafness	11	0·40	"	150	"
50	M	9	31	Bacteriologically	"	"	227	4·7	120	150	Deafness	180	1·40	"	150	Hydrocephalus operated on; condition fairly good
51	M	9	20	Clinically	Miliary tuberculosis	Choroidal tubercles	253	2·0	90	105	Eruption	1	0·20	"	150	Received 83 g. in 10 days. Gross residual tubercle in fundus oculi. Condition very good
53	M	14	33	Bacteriologically	Normal	No tubercles seen	165	2·9	91	116	None	29	0·60	"	156	Condition good
54	F	6	15	"	"	"	80	3·1	105	120	Convulsions	3	0·20	"	150	Hemiplegia shows improvement. Condition good
55	F	10	25	"	"	"	145	4·15	110	151	"	2	0·25	"	151	Condition good
56	M	9	15	"	Primary infection	"	12	0·9	9	9	None	280	6·40	Dead	9	Rapidly fatal issue
57	F	14	40	"	Miliary tuberculosis	Choroidal tubercles	21	0·2	7	7	"	68	1·20	"	17	" "
60	F	3	12	"	Normal	No tubercles seen	11·2	0·8	8	8	"	304	1·60	"	16	Removed by her family
61	F	5	15	"	"	"	42	2·0	21	21	"	121	2·00	"	21	Died without signs of improvement
62	F	11	29	"	"	"	154	3·4	124	149	"	5	0·60	Alive	149	Well
63	F	9	22	"	Miliary tuberculosis	Choroidal tubercles	62	1·1	11	11	Convulsions	208	0·80	Dead	15	Convulsions before treatment started
64	F	3	12	Clinically	Normal	No tubercles seen	193	5·3	141	149	None	6	0·40	Alive	149	Well
65	M	3	15	"	Primary infection	"	15	1·0	10	10	"	90	1·00	Dead	14	Rapidly fatal issue
66	M	17	60	Bacteriologically	"	"	250	2·3	120	120	"	1	0·30	Alive	150	Well
67	F	14	38	"	Normal	"	271	4·9	118	122	Eruption	3	0·20	"	146	"
69	M	7	18	"	"	Not examined	14	0·6	7	10						
71	F	13	36	"	Miliary tuberculosis	No tubercles seen	17	0·6	6	6	None	181	2·40	Dead	10	Rapidly fatal issue
												118	0·90	"	6	" "
72	M	5	15	"	Normal	"	69.	3·6	36	45	"	201	1·00	"	120	Removed by his family on the 36th day
73	F	4	14	"	Miliary tuberculosis	Choroidal tubercles	23	1·4	14	14	Eruption	91	1·20	"	14	Rapidly fatal issue
74	F	5	15	"	Normal	No tubercles seen	74	3·4	49	71	Deafness	38	32·00	"	105	Operated on. Tubercle on optic chiasma
76	M	10	31	"	"	Choroidal tubercles	264	3·25	129	135	"	4	0·70	Alive	135	Well
77	F	8	20	"	Primary infection	No tubercles seen	38	4·95	19	19	Eruption		3·20	Dead	21	Died without signs of improvement
78	F	7	18	"	Normal	"	83	3·0	27	45	Eruption; convulsions	12	6·40	"	45	Died after partial relief of symptoms
80	F	11	31	"	Primary infection	Choroidal tubercles	206	1·5	112	135	Eruption; deafness	12	0·45	Alive	135	Well
81	F	12	30	"	Normal	No tubercles seen	198	5·0	72	80	Deafness	26	19·20	Dead	98	Hydrocephalus operated on
82	M	3	12	Clinically	"	"	48	1·6	16	19	None	48	1·00	"	19	Rapidly fatal issue
83	F	4	10	Bacteriologically	Primary infection	"	107	3·3	104	127	Eruption	161	4·00	Alive	127	Hydrocephalus; condition poor
86	M	8	20	"	Normal	"	204	2·0	120	122	None	29	0·60	"	122	Well
87	F	7	18	"	"	"	142	1·7	112	123	Deafness	46	0·40	"	123	Not yet recovered

Details of Cases of Tuberculous Meningitis Treated with Streptomycin (cont.)

Case No.	Sex	Age (Years)	Weight (Kg.)	Diagnosis Confirmed	X-ray Findings in Lungs	Fundus Oculi	Dosage (g.)		Days of Treatment		Complications	Last Lumbar Puncture		Outcome	Days after Starting Treatment	Remarks
							I.M.	Spinal	Effective	Total		Cells per c.mm.	Protein (g./100 ml.)			
88	F	8	20	Bacteriologically	Primary infection	No tubercles seen	57	2·0	28	32	Eruption; deafness	51	1·00	Dead	75	Hydrocephalus operated on
89	F	1	7	"	Miliary tuberculosis	"	31	0·8	13	13	Convulsions	248	0·40	"	13	Rapidly fatal issue
91	M	1	7	"	"	Choroidal tubercles	123	2·0	90	120	Eruption	59	2·00	"	120	Hydrocephalus; condition poor
92	M	21	52	"	"	" "	310	1·7	115	138	"	101	7·00	Alive		" "
93	F	4	13	"	"	" "	39	1·3	13	13	None	85	1·00	Dead	13	Rapidly fatal issue
94	M	14	54	"	Primary infection	No tubercles seen	134	1·4	78	94	"	30	3·20	Alive	135	Exploration of optic chiasma; well
95	F	10	25	Clinically	Miliary tuberculosis	Choroidal tubercles	83	0·6	48	55	Eruption	5	0·45	"	97	Well
97	M	8	17	Bacteriologically	Normal	" "	120	1·3	75	75	None	21	3·20	"	75	Fairly well
98	M	4	13	"	"	No tubercles seen	47	1·1	66	66	"	31	0·90	"	66	Well
99	F	10	20	"	Miliary tuberculosis	Choroidal tubercles	113	3·5	64	64	"	12	2·40	"	64	Hydrocephalus not yet operated on
100	M	13	34	"	Pulmonary tuberculosis	No tubercles seen	156	0·6	63	63	Eruption	28	0·60	"	63	Well
101	M	12	34	"	—	"	21	1·1	7	7	None			Dead	7	Rapidly fatal issue
102	F	16	44	"	Pleurisy	"	218	1·5	45	45	"	30	1·40	Alive	45	Well
103	M	6	21	Clinically	Primary infection	"	90	0·7	45	45	"	3	0·20	"	45	"
104	M	4	14	Bacteriologically	Normal	"	61	1·0	46	46	"	21	1·00	"	46	"
106	F	11	22	"	"	Choroidal tubercles	108	1·3	36	36	"	17	1·20	"	36	"
107	M	1	7·5	"	Primary infection	" "	48	1·6	64	64	"	29	1·60	"	64	"
108	F	3	12	"	Normal	No tubercles seen	64	0·9	33	33	"	12	0·40	"	33	"
109	M	4	15	"	"	Choroidal tubercles	42	1·8	28	28	"	3	0·40	"	28	Hydrocephalus not yet operated on
110	F	14	42	"	"	No tubercles seen	121	1·1	28	28	Deafness	21	2·00	"	28	Fairly well
112	M	13	26	—	Miliary tuberculosis	Choroidal tubercles	81	2·4	27	27	None	22	0·80	"	27	Well
113	M	20	54	Clinically	"	" "	72	0·7	24	24	"	21	2·40	"	24	"
114	F	13	25	"	Normal	No tubercles seen	65	0·95	26	26	Eruption	13	0·80	"	26	"
115	M	17	47	Bacteriologically	"	"	86	0·9	22	24	None	372	1·75	"	26	Fairly well
117	F	2	9	"	Miliary tuberculosis	Choroidal tubercles	20	0·9	20	20	"	38	1·10	"	20	Very ill; disturbance of consciousness
118	F	14	52	Clinically	"	" "	59	0·7	14	14	"	29	0·70	"	14	Well

NOTE.—As the table was received some time after the text, cases treated since the article was written have been included.

70 cases only, leaving aside those patients who died almost at once and in whom the treatment could not have begun to take effect.

So far as one can at the present time attempt to define the new clinical picture of tuberculous meningitis, there are three possible ways in which the disease may develop: (i) some cases deteriorate whatever action is taken; (ii) others, after an encouraging improvement, seem to become stabilized, but gradually the disease, from being subacute, becomes chronic; (iii) others develop favourably and present every clinical appearance of good—even excellent—health, but we do not yet know whether it is possible to describe them as cured or whether relapses will occur.

In the first group were included the cases which developed fatally within a few days (13 of our first 50 patients), those which did so a little more slowly but without showing the slightest improvement (14), and those which succumbed after a very transitory abatement of symptoms (2). These were nearly all cases whose treatment was started too late. At the beginning of the experiment we gave up all idea of instituting streptomycin treatment in patients whose condition seemed to us beyond hope. Of all the unfavourable signs there is only one, in our opinion, which has an absolute value, and that is coma, by which we mean complete abolition of consciousness, absolute insensitivity to the strongest stimuli. This is the only condition in which we consider all hope to be lost. One cannot be so completely pessimistic when confronted by somnolence or torpor, even when this is marked, if one manages to lift the child out of it, even temporarily, and to drag a few coherent answers from him. One must also be on one's guard, in estimating disturbances of consciousness on the child's admittance to hospital, against the transitory aggravation due to being moved and to travelling.

Early Essays in Treatment

While we were still clarifying these elements in the prognosis we instituted, at an early stage of our investigation, a method of treatment of which the general principles were: (i) employment of large doses of the order of 100,000 to 200,000 units per kilogram of body weight per day; (2) administration of the drug by both the intraspinal and the systemic route; (3) prolonged treatment, with the highest doses compatible with tolerance for as long as possible.

This method of *large doses administered both systemically and locally over a prolonged period* was instituted at a time when we had only very vague data on the dosage and toxicity of streptomycin. With experience we found it to be dangerous, as it was the cause of severe—sometimes extremely severe—toxic disturbances. In future the method can only be accepted with reserve. Certain conclusions can be drawn from these results, and above all they provide a profitable lesson for those who may have to handle streptomycin for the first time.

When tuberculous meningitis is treated in this way an embarrassing situation arises out of the concurrence of symptoms and signs caused on the one hand by the disease and on the other by the drug.

The problem now becomes an extremely difficult one to solve, as streptomycin itself, introduced in this way in massive doses, creates an experimental disease that must be recognized in order to avoid therapeutic errors the consequences of which may be fatal to the patients. The disease thus created comprises (*a*) general toxic disturbances, (*b*) cutaneous reactions, and (*c*) meningeal reactions.

(*a*) The general toxic disturbances completely upset the temperature and weight charts, so that if treatment with large doses (more than 50,000 units per kg. per day) is carried out

no reliance can be placed on either fever or weight as a guide. Streptomycin produces very varied temperature curves: sometimes large waves, or, more especially, wide daily oscillations of the order of 1–2°; sometimes only moderate fever; but the temperature is never normal. Under the same therapeutic conditions the patient does not gain weight: he may lose weight at an extraordinary rate (10 kg. in about a fortnight). Still under the same therapeutic conditions, it is impossible to use the state of consciousness as a basis for estimating the progress of the meningitis. The somnolence and clouding of the mind may be caused by the toxic effects of the drug. If one interprets the fever, emaciation, and somnolence as indications for continuing the treatment, convulsions may well ensue, and these often end fatally or, at best, give rise to that well-known complication of streptomycin therapy, deafness, which has occurred in 15 of our cases, and the onset of which is particularly difficult to detect in the presence of such serious disturbances of consciousness. We should add toxic vomiting to this picture, a symptom which may occur even without intraspinal treatment. We would also mention, as symptoms of less frequent occurrence whose mechanism is still unexplained, tetany (in two cases), hyperazotaemia, and sometimes slight albuminuria.

(*b*) The cutaneous reactions, in spite of the fact that they may be chronologically independent of the general toxic manifestations, often give some warning: there may be transient erythema resembling that of scarlet fever, measles, or rubella; this is usually accompanied by fever and is in itself a painful complication.

(*c*) The meningeal reactions are characterized by stiff neck, sharp pain at each fresh injection of the drug, and special symptoms of sudden onset, i.e., severe convulsions with opisthotonos.

We must also mention a point which in our opinion is very important: the fact that repeated large doses of streptomycin introduced into the meninges always produce a violent histological reaction (wide daily variations in the lymphocyte count of the order of 50 to 400 and even 800 cells per c.mm).

If one adds to the intoxication and meningeal reactions the sufferings caused by local injections whose high concentration makes them irritant and liable to produce abscesses and scars, one finds that practically every case presents a pitiful picture. If, unaware as we were at the beginning of our researches of the general toxicity of streptomycin, one perseveres in the belief that these symptoms constitute a development of the meningitis one is heading straight for disaster. In practice it is essential sooner or later (within from one to three weeks) to cease treatment, possibly for some time if the patient is threatened with deafness. Cessation of treatment is accompanied by improvement or, to be more correct, a veritable resurrection: the temperature falls with surprising rapidity, the weight increases as quickly as it decreased, and the disturbance of consciousness disappears.

If there is too much delay in resuming treatment a probably fatal relapse ensues sometimes after an interval as short as a week, sometimes after the patient has been normal for as long as 85 days. This may happen with devastating rapidity.

It is impossible, therefore, to adopt such a method; that is the first point to be learnt from this therapeutic trial. It is a great strain for the patient, and causes numerous toxic manifestations and sometimes permanent infirmity. It also necessitates, sooner or later, stopping the treatment in circumstances such that one hesitates to resume the administration of the drug. It is essential to recognize all these disadvantages. On the other hand, it should be remembered that such energetic treatment seems to ensure the most rapid improvement in the cellular reaction of the cerebrospinal fluid: we shall see the importance of this later. In order both to exploit the advantages and to avoid the disadvantages of this method, we finally adopted a new therapeutic procedure, which we will now describe in its principles and applications.

Treatment in Present Use

The treatment which we are now using against tuberculous meningitis comprises two distinct phases: the *phase of attack*, followed by the *phase of maintenance*.

The phase of attack consists of large doses: 100,000 units per kilogram per day by the parenteral route and at the same time two intraspinal injections per day of 50,000 to 100,000 units. This treatment is continued for about a week, with some variations to suit individual reactions. In the second phase, treatment is maintained at doses below 50,000 units per kilogram per day by means of parenteral injections alone, no intraspinal injections being given as a rule.

Carried out in this way the phase of attack takes place without any serious disturbances. It may, on occasion, be modified if meningeal intolerance makes this necessary; this would involve giving the intraspinal injections at longer intervals or even stopping them altogether.

The dosage to adopt in the maintenance phase of treatment is a difficult question to settle. Its level may be lowered if there are manifestations of intolerance and particularly if signs of intoxication appear (the much rarer cases of deafness may be encountered even with small continuous doses). What is more difficult still is to assess the progress of the meningitis. It very often happens that the patient appears at this stage to be in excellent condition. What points reveal the state of his meninges? For our part, setting aside the information derived from the comparison of the *x*-ray plates in the case of associated miliary tuberculosis of the lungs, we note, among the clinical elements, the development of the pyrexia: any rise in temperature or any wave modifying a curve which has normally been following a progressively downward trend should arouse attention once the possibility of drug fever has been eliminated.

We attach the greatest importance, however, to the essential supplementary examinations—i.e., those of the fundus oculi and the cerebrospinal fluid.

For the observation of a case of meningitis the collaboration of the ophthalmologist is indispensable, as the examination of the fundus oculi is one of the most delicate methods by which it is possible to keep a watch on the progress of the meningitis: the choroidal tubercles, under the influence of the treatment, lose their original aspect and gradually heal or disappear, leaving residual pigmentation. At the same time it often happens that the specialist detects the appearance of fresh tubercles well before the clinician has noticed anything abnormal.

The second indispensable method of investigation is the examination of the cerebrospinal fluid. It required a whole series of accidental circumstances, comparisons of estimations, and discussions before we accorded to the lymphocyte count the importance which it now seems to us to merit. If one takes the trouble to work out the significance of the changes in the lymphocyte count incidental to local treatment, and to study the general trend of the count from a curve plotted from estimations at suitable intervals (about every eight days), one cannot fail to be struck by the importance of the evidence afforded by this means. Thus in favourable cases it is possible to obtain a count which remains normal or subnormal; in 16 of the cases at present under observation the number of cells per cubic millimetre is always below 10, and generally of the order of 4 or even less. On cessation of treatment a sudden rise in the number of lymphocytes may be observed; this appears to precede

clinical recurrence of the infection. If the dosage is diminished a sudden or progressive increase in the number of leucocytes may be noticed. To obtain this return of the cerebrospinal fluid to normal, which we consider indispensable, the minimum dosage varies from one patient to another; in certain cases the minimum effective dose is very close to or even exceeds the toxic dose. This is the eventuality to be dreaded most in practice, and though the situation may not be conclusive it is too soon to be certain on this point.

These are the broad outlines of the treatment which is at present being tried out at the Clinique Médicale des Enfants. The immediate results of the method are good. At the present moment 46 children who have been undergoing treatment for from 2 to 10 months are behaving like normal beings. The tuberculous meningitis ward is like a playroom, where the liveliness provides a constantly touching scene.

The problem arises, or will arise sooner or later, of when to stop the treatment, and this is the most difficult question of all. In every country doctors are asking themselves, When and on what indications can one stop the treatment? For our own part, forewarned by our early mistakes of the gravity of premature cessation of treatment followed by fatal relapses, we have not yet dared to make the decision. We are treating the children continuously, as diabetics are treated with insulin. Here, to be honest, we come up against an unfavourable factor in the occurrence of streptomycin resistance in the tubercle bacilli, but we have not arrived at any definite conclusions on this still very obscure problem; at the same time there is a favourable factor in the tendency shown by the lesions to heal by degrees as the duration of the tuberculosis increases. We have now decided not to cease treatment until we have the support of a large number of reassuring signs: absence of all clinical meningeal symptoms, an ascending weight curve, complete apyrexia, normal sedimentation rate, and a spinal lymphocyte count below 10 per c.mm. at repeated examinations. We would add to this, absence of tubercle bacilli in culture and, if possible, a normal quantity of cerebrospinal albumin. This last point is justified by an extremely important observation concerning the evolution of certain cases of meningitis treated by streptomycin.

Symptoms after Apparent Cure

A fourth group of patients develops in a very peculiar manner, and a knowledge of the facts involved constitutes an indirect advance in the streptomycin therapy of tuberculosis. Though apparently cured of meningitis in so far as they no longer present any clinical syndrome of the infection, are practically free from fever, and there is no longer any serious cellular reaction in their cerebrospinal fluid, these patients do not recover their liveliness like the others, and do not regain weight. Sometimes their neurological examination is not completely negative (there may be cutaneous hyperaesthesia, Babinski's sign, or slight tremor). In this case very careful attention must be given to the examination of the eye and of the cerebrospinal albumin. In these patients the possibility of a mechanical lesion, particularly the setting up of hydrocephalus secondary to meningeal adhesions, should be considered. This is where the neurosurgeon is called in to deal with the new situation; we are not yet certain whether this is the result of tuberculous meningitis or the consequence of a cerebral tubercle against which streptomycin does not seem so far to be as completely effective as against meningitis. The decision to operate was taken in 6 cases. In 5 of these the findings were widespread leptomeningitis or pachymeningitis of the cisterna pontis; in the sixth case there was a large meningeal tubercle round the chiasma. In two of these cases the results were remarkable, one patient, who was comatose and blind at the time of operation, being one of those who are now giving us the greatest hope. In the new treatment of tuberculous meningitis the neurosurgeon is associated with the physician, as the chest surgeon is associated with the phthisiologist in certain cases of chronic pulmonary tuberculosis.

THE TROPICAL LICHEN PLANUS SYNDROME

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An unusual disease with striking cutaneous manifestations has been observed in Australian, American, and New Zealand troops serving in widely scattered areas of the Pacific. Because of its geographical distribution, and from some clinical and histological resemblances, it has become commonly known as tropical lichen planus. The condition was briefly referred to by Myers (1944) in the course of a review of skin diseases affecting Australian troops in New Guinea. A detailed account of the findings in some American cases has been given by Bagby (1945).

The aetiology is not definitely established, but there is substantial evidence that the disease has some relation to the use of mepacrine as a malaria suppressive. The public revelation that an identical syndrome has been observed for some time in military forces using mepacrine suppression in Europe and the Middle East substantially confirms this belief (*Lancet*, 1945, **2**, 711).

In his account Bagby mentions that the total number of cases in American troops would be impossible to estimate. A reasonable assessment of the incidence, as well as some conclusions from the geographical distribution, can be made from an analysis of the figures for a New Zealand force which operated in the Pacific Zone. This was a relatively small force of some 18,000 men, and it maintained independent medical services. Divisional troops comprised about 12,000 men, and all evacuations from this group came ultimately to a single base hospital, where all skin cases were seen by me. Most of the men in the force had served for periods of six months to two years in Fiji prior to November, 1942. Individual battalions had been stationed also in Tonga and Norfolk Islands. In November, 1942, the force proceeded to New Caledonia. Although some of these islands are quite tropical in climate, none of them is malarious, and therefore no mepacrine suppression was employed. No case of tropical lichen planus, or any condition resembling it, was seen at that time, though the usual tropical dermatoses were prevalent.

In August and September, 1943, the combatant part of the force moved to Guadalcanal, one of the Solomon Islands, some units spending a few weeks on the New Hebrides en route. In the following 12 months they were divided into two groups, which operated independently on various islands in the Solomon region. All these islands are highly malarious, and suppressive mepacrine was started when troops left New Caledonia, being maintained continuously until their return. The rate of administration was 0.1 g. of mepacrine daily for six days in each week.

The first case of tropical lichen planus in this force was evacuated to the base hospital in early December, 1943, and five further cases were received in the following five months. This suggests, at first consideration, a steady trickle of cases, but examination of the histories shows that

in all six cases the initial symptoms and lesions appeared between eight and twelve weeks from the date of giving suppressive mepacrine. All cases seen were in divisional troops from malarious areas. No cases occurred in troops who did not enter a malarious zone.

The evolution of the clinical picture followed closely that described by Bagby (1945). Three representative case histories are given.

Case 1

The patient, a white soldier aged 24, had served in Fiji, New Caledonia, Guadalcanal, and Vella Lavella. Eight weeks after he entered the malarious area the toe-nails of both feet became diffusely opaque and thickened, and a patchy dry thickening of the skin started on his soles. This was followed shortly by cracking and peeling of the thickened areas. In the next month his finger-nails also became opaque and thickened, and a patchy keratosis followed by peeling appeared on the palms. About the twelfth week from the date of commencing mepacrine the whole of his trunk and limbs became very itchy, and a symmetrically distributed pink macular rash appeared on his lower legs and upper chest. Individual macules were up to 1/2 in. (1.25 cm.) in diameter. In the next four weeks similar lesions appeared thickly on his buttocks and sparsely over his back and limbs. His abdomen and upper thighs were almost free, and no lesions occurred on his head or neck. Within a few days of their appearance these pink macules, at first smooth and shiny, became dull and covered with thin scales. He was evacuated to base hospital in New Caledonia sixteen weeks after he had started to use suppressive mepacrine. No further mepacrine was given after his return to New Caledonia. On admission most of his body showed erythemato-squamous lesions up to half an inch in diameter, confluent on parts of the upper chest, buttocks, and lower legs. His palms and soles had completely peeled, and showed resultant irregular red scaly patches. All the nails of his fingers and toes were thickened, opaque, and crumbling at the ends, and there was much subungual proliferation. There were no lesions on his face or scalp, and his lips and tongue appeared normal. He was well nourished, felt well and alert, had a good appetite, and slept well. His only complaints were of slight itching of the back and buttocks and some tenderness of the feet. The erythrocyte count, haemoglobin estimation, white-cell count, sedimentation rate, and blood Kahn test gave normal findings. In the following fortnight a very few new macules appeared. The older lesions became increasingly scaly.

During the sixth month from beginning mepacrine the trunk and limb lesions lost most of their scaliness and some healed, to leave apparently normal skin. Others became gradually replaced by brown evenly pigmented macules. During this month a diffuse follicular keratosis appeared on his upper chest and most of his back. This prompted a further search for a convincing focus of cutaneous fungal infection. None was found. By the seventh month the spiky follicular plugs had all gone, and the areas of his palms and soles, which had been red and scaly, were covered with thin red shiny skin. Many of the macules had lost some pigment, to leave a reticulated patchy area at the site of a previously evenly coloured lesion. In the ninth month fading of the pigmented macules continued. In addition areas up to half an inch in diameter of the skin on his trunk, limbs, face, and forehead rapidly lost all their pigment. The resultant vitiligo appeared at sites previously apparently normal, as well as sometimes being superimposed on old pigmented lesions. This patient had shown no previous lesions on his scalp, face, or forehead.

By the tenth month the earlier pigmentation was no longer detectable, his nails were normal, all scaly lesions had disappeared from his body, and the skin of the palms and soles looked normal. He was entirely symptom-free. However, there were many scattered areas of vitiligo, and patches of scalp, eyebrow, and beard hair were quite white. The remaining hair was a diffuse grey colour. He indulged a good deal in sun-bathing at this time. The vitiliginous areas were unchanged, but appeared more prominent because the skin between tanned normally. His condition was reported to be unchanged eight months later—i.e., 18 months after he began taking mepacrine. It is possible that the vitiligo is permanent.

Case 2

A quarter-caste Maori, aged 37, who had served in New Caledonia and Vella Lavella, found that ten weeks after he began the use of suppressive mepacrine the skin of his palms became dry, with patches of thickening and some cracking and peeling. Two weeks later his tongue and lips became tender, and a number of reddish scaly patches about half an inch in diameter appeared on his limbs. Patches of hyperkeratosis were noticed also on his feet. His nails, both of fingers and of toes, became opaque and brittle. He was much troubled by what he called prickly heat, though no lesions were present on his trunk. In the next few weeks further scaly patches appeared on his buttocks.

Five months after he had started mepacrine he was evacuated to New Caledonia and mepacrine was stopped. He felt quite well and was well nourished. Examination showed irregular patches of hyperkeratosis on his palms, with some red scaly areas where peeling had occurred. Almost the whole of both palms was involved to some degree. A similar patchy keratosis with peeling was present on his feet. The nails of fingers and toes were brittle and showed much subungual proliferation. Dark petechia-like spots, visible through the nails, were present in profusion. There were slightly raised bluish-purple areas, mostly about half an inch in diameter, with a powdery surface, on the dorsal aspect of some toes, a few on his legs, a big crop on his buttocks, some on his arms, and one or two on his face. These lesions had originally been a dark-red colour. A striking specimen on one forearm was a vivid blue raised lesion an inch (2.5 cm.) in diameter. His lips showed a patchy bluish pigmentation, which was present also on the buccal mucosa. Irregular areas of the tongue and lips were superficially ulcerated. There was much tenacious white material on his lips, tongue, and palate. The erythrocyte count, white-cell count, haemoglobin estimation, and blood Kahn reaction were within normal limits. His blood sedimentation rate was 8 mm. in one hour.

Change in this patient was very slow. The mouth lesions gradually cleared, and by the eighth month there was appreciable healing of the red scaly areas on his palms, with the production of a thin shiny scar, associated with a good deal of brown pigmentation. There were also several small areas of vitiligo on his hands and arms. By the end of the ninth month he showed red atrophic scarring of large areas of his palms with much brown pigmentation. There were also scattered scaly, almost healed areas of a purplish colour on the soles of his feet. There were purple-pigmented areas on his hips, buttocks, toes, and limbs. There was some interspersed loss of pigmentation on his buttocks, but it did not amount to complete vitiligo. He still showed much bluish pigmentation of the lips and buccal mucosa.

In the next three months his condition showed no change. His general health remained good, and he felt thoroughly well at all times.

Case 3

A white soldier, aged 26, who had served in Fiji, Norfolk Island, New Caledonia, Guadalcanal, and Mono, had suffered occasional mild attacks of seborrhoeic dermatitis of his chest for ten years, but had been quite free for the previous two years. Twelve weeks after he started taking mepacrine he complained of sore lips, which he attributed to sunburn. His lips rapidly became dry and fissured, and within a week he became aware also of some roughening and cracking of the skin in his fingers and palms, large areas of which peeled. In the following week his feet became tender, and whitish "empty blisters" appeared on the soles. They contained no fluid, and were shed in a general desquamation of the soles of both feet. About this time the nails of his fingers and toes became brittle and there was a marked increase of the subungual tissue. The distal parts of the nails assumed a dusky hue, and dark spots like petechiae could be seen through the nail substance. In his fourteenth week on mepacrine he was admitted to a medical unit, and at that time a pink macular rash erupted on his wrists, arms, back, toes, and legs.

He was evacuated to base hospital in his fifteenth week, and then showed almost complete peeling of the palms and soles.

to leave a rough red surface. Many of the earlier pink macules had become scaly. There were some fresh pink lesions. His lips displayed patches of a thick whitish exudate and some fissuring. Similar exudate was present on the palate, and the tongue showed some small ulcers. He had no signs of seborrhoea. His general condition was good, he felt alert and active, and he slept and ate well. The erythrocyte count, haemoglobin estimation and white-cell count were normal. His blood sedimentation rate was 27 mm. in one hour. His urine was normal and he was apyrexial. A Kahn test was negative.

There was no notable change till three weeks later, when he became troubled with diarrhoea, having three or four loose bowel motions daily. This continued for several weeks and subsided gradually. Stool examinations were negative, and he remained apyrexial. When the diarrhoea began an extensive fresh crop of pink macules appeared, most thickly on the thighs and buttocks, the latter being almost covered. There was at this period a further shedding of skin from his feet, and over the heels this was so severe as to produce two raw exuding areas 1½ in. (3.75 cm.) in diameter.

In the sixth month from the date of starting mepacrine there was a gradual change. The trunk lesions lost their scaliness and were replaced by pigmented macules. His lips and tongue healed. Subsequent change was slow. By the ninth month some chest lesions had vanished. The remainder were deeply pigmented. The healing areas on his palms were very atrophic. During this month he developed some typical seborrhoeic lesions on his sternal area. They responded rapidly to routine treatment.

By the tenth month there was irregular depigmentation of some of the back lesions, but marked pigmentation of the healed atrophic palmar areas. There was much horny accumulation on the lesions grouped about his wrists. The granulating areas on his heels had remained virtually unchanged for four months (Fig. 1). Elsewhere on his feet there was atrophic pigmented scarring. The Kahn reaction remained negative. The erythrocyte sedimentation rate was 30 mm. in one hour. The patient felt well and ate well.

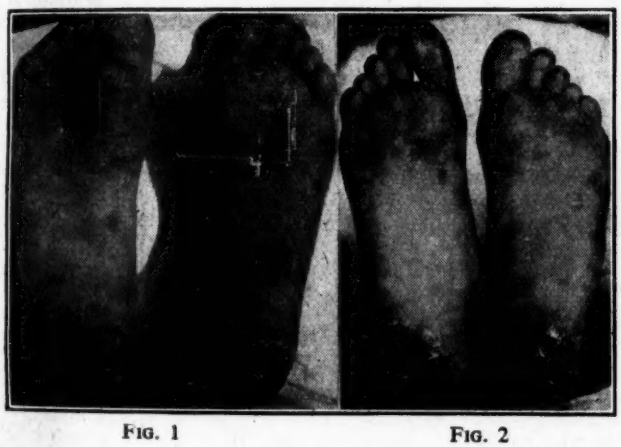

FIG. 1 FIG. 2

FIG. 1.—Case 3; ulcers of feet unchanged for four months. Condition at time of the second injection of neoarsphenamine.

FIG. 2.—Condition of ulcers in Case 3 three weeks later.

Although there was no proof of a spirochaetal cause, the general resemblance of this and the other cases to pinta had been noted. As this patient remained bedridden from the state of his heels, it was felt that a course of organic arsenic injections was worth a trial. He showed no untoward effects from the first two injections of 0.3 and 0.45 g. of neoarsphenamine, and epithelization of the granulating areas on his heels had started before the third injection of 0.6 g. (Fig. 2). However, a few hours after this injection he suffered a severe reaction, was pyrexial for a week, and had generalized limb and joint pains, sore throat, enlarged lymph glands, albuminuria, and a leucocytosis. There was no cutaneous reaction. This acute disturbance subsided rapidly, and two weeks later he was symptom-free, apyrexial, and passed normal urine. The granulating lesions on his heels were almost covered with epithelium by this time, and there was rapid improvement in all the early lesions of his feet and wrists. No more neoarsphenamine was administered.

He was later permitted to sun-bathe, in graduated doses, to determine his response to light. There was no recrudescence, and he tanned normally except for some areas of vitiligo on his buttocks.

Clinical Features of the Disease

Analysis of the histories revealed the following details: (i) It is a disease confined to persons who had used mepacrine as a malaria suppressive in a tropical climate. (ii) There was a singular absence of constitutional disturbance throughout except in one case. (iii) The initial signs appeared between eight and twelve weeks after mepacrine was started. (iv) Fresh lesions continued to appear so long as mepacrine was used, and ceased within a few weeks of its discontinuance. (v) In all cases some degree of palmar and plantar hyperkeratosis as a primary or early lesion was present. (vi) There was a fairly generalized pink macular eruption, the individual lesions of which became scaly and sometimes markedly infiltrated. (vii) Striking pigmentation, producing a wide range of colours. (viii) A variable degree of horny follicular plugging on back and shoulders. (ix) Involvement of the tongue, lips, and buccal mucosa in most cases, the lesions being suggestive of syphilitic mucous patches. (x) Early and destructive but not permanent nail changes. (xi) Fading of pigmented lesions, which was sometimes arrested, to leave a reticulated or variegated appearance. (xii) Ultimately the development of vitiligo in scattered areas. This deformity seemed likely to be permanent. (xiii) Marked atrophy of the skin in some healed lesions.

Discussion

These cases provided a rich field for diagnostic speculation. That they were a spectacular form of "id" eruption associated with a fungal infection was the first suggestion. Thorough search failed to confirm this belief, though the discovery of what at first appeared to be a veritable tangle of fine hyphae in the skin of the back raised high hopes. It was later realized that the suspected mycelium was elastic tissue obtained by cutting into the corium. That there was a dietary basis for the disorder seemed most unlikely in view of the general well-being and absence of the distinctive stigmata. Substantial dosage with vitamins A and D, thiamin, nicotinamide, and riboflavin produced no notable change.

The possibility of an infective cause peculiar to the Solomon Islands was considered. It was not then known that the condition was more widespread. Yaws is endemic in the native populations of the Pacific. Pinta, also clearly proved to be a spirochaetosis, which is a common disease of tropical Central America and the West Indies, produces a clinical picture in many ways very much like these cases (Stitt and Strong, 1945). Especially is this true of the Cuban variety of pinta, in which the primary lesion is said often to be a palmar keratosis. With yaws common in a native community a lesser spirochaetal disease like pinta might well exist unrecognized. The method of transmission of pinta is not known with certainty. Insect vectors have been suggested. Thus an insect-borne spirochaetosis such as pinta could perhaps make its appearance in troops even if their association with natives was not close enough to allow of contact transmission of yaws.

Searches for spirochaetes and Kahn and Wassermann tests were therefore carried out at regular intervals, with consistently negative results. Cerebrospinal-fluid Kahn and Wassermann findings were negative. Attempts to transmit the disease by inoculation of a volunteer with serum from scarified lesions were unsuccessful. Kahn and Wassermann tests repeated eighteen months after the onset

of the original symptoms were reported to be negative. Although positive serological findings develop relatively late in pinta it was felt that this diagnosis need no longer be entertained. The improvement in one case following neoarsphenamine was presumably a non-specific effect.

The world-wide distribution of this disorder, its involvement of different racial types, its independence of climate, and its invariable association with the use of mepacrine seem to leave no doubt of that drug's causative role. It also raises the question whether less typical cases may have escaped detection. Out of a profusion of ordinary tropical dermatoses only one other patient seen at the same time as the above group warrants brief description:

Sapper E., when admitted, displayed infiltrated erythematous plaques on the dorsum of both feet, on the extensor surface of his arms, on the back of the hands, ears, face, front and back of the neck, and a few in the axillae. He showed also some patchy loss of scalp hair. He had been taking mepacrine for eight months. The lesions had appeared ten weeks after he started taking the drug, and had advanced slowly thereafter. He had no symptoms. Shortly after his admission, at which time his case was tentatively diagnosed as subacute lupus erythematosus, a peculiar gross patchy hyperkeratosis of his palms appeared, with similar but smaller lesions on the feet. It was identical with that displayed in the typical tropical lichen-planus cases. He had no constitutional symptoms. His lesions gradually improved over the next two months, and he was then lost sight of.

Review of the history of Case 3 reveals a considerable resemblance to disseminated lupus erythematosus. Suggestive of this disease were the onset following unusual exposure to sunshine at a picnic—he was an orderly-room clerk and mostly kept indoors—the period of diarrhoea associated with an exacerbation of his rash several weeks after he had stopped taking mepacrine, and the persistently raised sedimentation rate. Against this, and supporting its classification as tropical lichen planus, were the relation to mepacrine, the complete absence of lesions of the face, and the extensive and severe involvement of the palmar and plantar regions

Biopsy of a fresh macular lesion of the trunk in this case showed a non-specific histology resembling acute solar dermatitis. A hypertrophied scaly papule from the wrist appeared like typical lichen planus in most of its details. It showed hyperkeratosis, increase of the granular layer, acanthosis, liquefaction degeneration of the basal layer, and a diffuse infiltration of the upper cutis by lymphocytes and plasma cells merging with the basal cell layer. In the deeper part of the corium this infiltration was associated with vessels and hair follicles, and there were also some oedema and proliferation of the endothelium of the smaller vessels.

Summary

In a group of troops serving in scattered tropical areas, both malarious and non-malarious, tropical lichen planus was noted only in those who had taken mepacrine for malaria suppression. The incidence was approximately 1 per 2,000 troops. The initial symptoms appeared when mepacrine had been used for between two and three months. Some of the residual lesions seemed to be permanent. Some resemblance to disseminated lupus erythematosus is noted.

I wish to thank Brigadier J. M. Twhigg, D.D.M.S., N.Z.E.F.I.P., for permission to publish this material, and Colonel E. G. Sayers, C.O., 4 N.Z. General Hospital, for his interest.

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POLIOMYELITIS: A SECOND ATTACK

BY

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It is generally believed that second attacks of poliomyelitis are very uncommon, and this seems to be borne out by the small number of such instances reported in the literature. Quigley (1934) collected 12 cases, while Bridge *et al.* (1946) reported 6 among approximately 1,100 cases of poliomyelitis in and around Buffalo during the summer of 1944. In all some 37 cases have been reported in various American publications.

We feel, therefore, that it would be of interest to record the following case of a second attack which came to our notice recently. This was one of the 21 cases admitted to hospital in the Swansea area.

Clinical Summary

First Attack.—A girl aged 3½ was admitted to Hill House Isolation Hospital on Aug. 28, 1938, at the height of a poliomyelitis epidemic. The child had been generally out of sorts and listless for a few days, later becoming feverish, with occasional twitching of face and body. There was no history of obvious contact with infection, but her father worked in close association with a man whose child had been admitted to the same hospital on Aug. 19 suffering from poliomyelitis. On admission the child was pyrexial—temperature 102° F. (38.9° C.)—and showed left-sided facial paralysis and weakness of the abdominal muscles. C.S.F. findings were: colourless slightly granular fluid; 39 cells per c.mm. (all lymphocytes); globulin, faint trace; protein, 30 mg. per 100 ml.; glucose, 74 mg. per 100 ml.; chlorides, 702 mg. per 100 ml.; Lange curve, 0012210000. A facial hook was fitted and the child kept in bed for five weeks. She was discharged a week later with the hook still *in situ*. Subsequently she was seen at regular intervals by an orthopaedic specialist, and at the end of six months the facial muscles showed complete recovery of power and the facial hook was discontinued.

Second Attack.—During the current epidemic of poliomyelitis the child, now aged 12, was admitted to Hill House Hospital on Oct. 9, 1947, with a definite attack of the disease. She had had a cold a week previously, followed later by aches and pains "like 'flu.'" On the day of admission she became feverish, developed a stiff neck, and had some difficulty in moving her right leg. Again there was no definite history of contact with infection, but a month previously two young children living opposite the patient had been admitted to hospital with poliomyelitis, and the parents of the two families had had frequent contact. On admission the temperature was 100.4° F. (38° C.); there was stiffness of the neck and spine, and a sluggish knee-jerk on the right side. Next day there was paresis of the right gluteus medius and quadriceps with loss of the knee-jerk on the same side and weakness of abdominals. C.S.F. findings were: clear fluid; 89 cells per c.mm. (90% lymphocytes); globulin, trace; protein, 100 mg. per 100 ml.; glucose, 80 mg. per 100 ml.; chlorides, 731 mg. per 100 ml.; Lange curve, ½½12110000.

It will be noted that the following factors were common to both attacks: (1) A fairly typical history in the presence of an epidemic; (2) muscle paralysis and weakness; (3) changes in the C.S.F.—namely, increased cell count and raised protein content—which are consistent with a diagnosis of poliomyelitis. These, we feel, serve to demonstrate the true nature of the illness in both instances.

Discussion

The occurrence of a clinically recognizable second attack of poliomyelitis, in the ratio of one such case to a total of

only 21 cases, naturally raises a suspicion that immunity acquired after an attack of the disease may not be as complete and lasting as one is generally led to believe. This is the more significant in the light of modern teaching that latent and mild non-paralytic infections are exceedingly numerous during epidemic periods, and that the development of paralysis is an uncommon and unfortunate complication in a minority of cases. Mild atypical cases are unfortunately often missed; at best diagnosis can be confirmed only by expensive and impracticable animal-inoculation tests. In such circumstances it is very likely that atypical second attacks frequently go undetected. In an attempt to ascertain the degree and effectiveness of immunity following an attack of poliomyelitis, Bridge *et al.* (1946) investigated during an epidemic the incidence of illnesses regarded as mild poliomyelitic infections among 168 persons who had had the disease previously. There was definite evidence that 77 of the 168 had been further exposed, and 17% of those exposed revealed symptoms, such as fever, vomiting, muscle spasm, and transient weakness, suggestive of a mild form of the disease.

Whereas little is known of the antigenic structure of the viruses, there is definite evidence that different strains of the poliomyelitis virus exist. Rhodes (1947) describes the main members of the poliomyelitis group of viruses to be the monkey-pathogenic or simian strains, the Lansing, S.K., and M.M. strains, and Theiler's virus. It is possible that these strains are immunologically different and that each strain affords protection only against itself, despite the fact that the clinical syndrome may be the same in each case. Trask *et al.* (1937a and b) showed that strains isolated from various outbreaks in 1930 and 1931 were immunologically different, while Burnet and Macnamara (1929, 1931) found that monkeys which survived infection with one strain succumbed later to a different strain. Similarly, in 1937 Flexner showed that it was possible for monkeys to suffer two or even three attacks of poliomyelitis —an observation which had also been noted as early as 1913 by Kling and Levaditi.

Poliomyelitis occurs principally in infancy and childhood. Adults are not commonly attacked, presumably because of acquired immunity following latent or subclinical attacks. Nevertheless during the last war the incidence of poliomyelitis was much higher in troops stationed in the Middle East and India than in those in this country, one of the possible explanations being that the former were exposed to a strain against which they had no previous immunity (McAlpine, 1945). It is obvious, therefore, that we should be cautious about accepting the statement that one attack of poliomyelitis confers lifelong immunity, for if the immunological link in our chain of evidence is faulty then surely our measures for the prevention and control of the disease will be equally faulty.

We are indebted to Dr. H. R. Tighe, Medical Officer of Health, Swansea, for his interest, advice, and permission to publish this article, and to Dr. A. F. Sladden for his reports on the C.S.F. findings.

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THE TETRALOGY OF FALLOT AND ITS SURGICAL TREATMENT

BY

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The congenital heart lesion known by the popular name of "blue baby" was first introduced by the Englishman, Peacock, as the "blue maladie." Later on, in 1888, Fallot discussed the syndrome and provided the description which is characteristic of the condition as we know it to-day.

It was of interest to inquire into the incidence of the disease. White has stated that congenital heart disease constitutes between 2 and 3% of all cardiac lesions. The tetralogy of Fallot constitutes about 5% of the cases of congenital heart disease. If, however, a case of congenital heart disease has cyanosis, the probabilities are about 75% that the diagnosis is the tetralogy of Fallot.

The characteristic features of the syndrome described by Fallot are: (1) Stenosis of the pulmonary artery, (2) patent interventricular septum, (3) dextra position of the aorta, (4) hypertrophy of the right ventricle. Obviously there will be many variations from this particular set-up. In some the stenosis is greater than in others and the condition is apt to be associated with other congenital lesions.

Considering the possible causes of these defects occurring during the early development of the heart, Maude Abbott (1936) and Blalock and Taussig (1945) have suggested infectious disease of the mother during the first three months of pregnancy. German measles seems to be the commonest offender in this respect, but other conditions affecting the mother's health during this stage of development, when the cardiac chambers and such are being formed, may play an important part.

Signs and Symptoms

The clinical findings in the disease are as follows. (1) Cyanosis of the infant. It is usually present at birth, is continuous, and never disappears. (2) There is a strong systolic murmur that is heard best in the pulmonary area and may be heard fairly widely over the praecordium and sometimes in the interscapular region. (3) Clubbing and marked cyanosis of the fingers and toes. (4) The most characteristic sign, apart from the cyanosis, is the limited tolerance of exercise. The patient has marked dyspnoea on the slightest exertion. The cyanosis increases and the child is able to walk only a short distance, when he becomes exhausted and squats down in a characteristic fashion.

Further investigation adds much to substantiate the diagnosis. To compensate for the lack of aeration of the blood there is a polycythaemia, which may be as high as 10,000,000 red cells per c.mm. or more. The haemoglobin is increased in proportion and may rise from normal up to 185 to 190%, and the volume of packed cells (haematocrit) up to 75%. The oxygen saturation of arterial blood is diminished, and in the worst cases it may be below 30%. In patients with a level such as this the exercise tolerance is greatly reduced. When the oxygen saturation is between 60 and 70% the exercise tolerance is improved, and above this level the clinical sign of cyanosis is not present.

The electrocardiogram shows right-axis deviation. *X*-ray examination of the heart shows enlargement. The characteristic enlargement is a projection of the left ventricle to the left with double apices, and an enlargement

of the right ventricle, the whole suggesting the shape of a Dutch wooden shoe. There is no pulsation in the area of the pulmonary vessels or conus arteriosus, and there is a defect in the heart shadow here which indicates lack of development of these structures. There is no pulsation in the lung fields, so the condition cannot be confused with Eisenmenger's disease.

Further important information may be obtained by catheterization of the heart as described by Cournand *et al.* (1945) and as used by Bing (1946) in Blalock's clinic. The catheter is passed through one of the superficial veins to reach the right auricle under fluoroscopic control. From the auricle blood for oxygen saturation is taken and the pressure recorded. The catheter is then passed on into the right ventricle, when more blood samples are taken for oxygen saturation and pressures are recorded. The catheter can then usually be passed into the pulmonary artery, and saturation and pressures are again recorded. From this evidence one can determine the presence of an interauricular septal defect, an interventricular septal defect, or pulmonary stenosis. The proportionate amount of flow through the pulmonary circulation can also be determined on this information. The information is useful in making a diagnosis, in forming a decision on whether operation is indicated, and in considering the improvement to be expected from it.

Most of the children with this condition die at birth or soon after. A few live to 6 or 7 years, even to 10 or 12. Very occasionally one will survive to adult life. The patient suitable for surgery is the child who has survived for perhaps a year or more, has limited exercise tolerance, and has the findings already enumerated.

Treatment

I think the physicians will agree that there is no specific medical treatment that will alter the course of this disease to any great extent. It is due to the pioneer work of Blalock and Taussig (1945) that fairly effective surgical treatment has been devised. The principle of such treatment is to take a large branch from the aorta and anastomose it with the pulmonary artery so that more blood passes through the pulmonary circulation (Murray, 1940). When successfully carried out with a large branch, the results are very impressive. The patient turns from blue to a satisfactory pink colour.

Naturally the operation is one of considerable magnitude and the dangers are not few. In Blalock's early series the mortality rate was about 25% ; but according to a more recent publication he has reduced this to 17%. Such a mortality is not surprising, since the patient is a poor subject to stand operation. Moreover, the adjustment in circulation necessary after operation imposes considerable strain on a poorly developed organ. In some patients the heart is too defective, and the cardiac reserve too small, to withstand the change.

In my series of 60 cases of congenital heart disease operated upon there were 40 of Fallot's tetralogy, 11 of patent ductus arteriosus, and 9 others, with an overall mortality of 11.7% and in the tetralogies 7.5% (see Table).

Disorder	No. of Operations	Deaths
Fallot's tetralogy	40	3 (7·5%)
Patent ductus arteriosus	11	0
Others:		
Pulmonary stenosis, no patent septum	1	
No pulmonary artery	1	
Persistent truncus arteriosus	2	
Eisenmenger's malformation ..	3	
Single pulmonary artery	1	
Roger's malformation	1	
Total	9	4
Total ..	60	7 (11·7%)

After operation the patients are nursed in an oxygen tent for a few days. If a satisfactory anastomosis has been performed, their recovery is surprisingly smooth and the benefits of improved oxygen saturation are obvious usually within a matter of hours. All my patients have received heparin (Murray, 1940) post-operatively to aid in keeping the anastomosis patent.

The surgical treatment of many cases of the tetralogy of Fallot is very satisfactory, bringing relief of symptoms, improvement in colour, and greatly increased vigour.

I wish to thank Dr. Edmund Delorme, Dr. Joseph Janes, Dr. David Bohnen, and Mr. Newell Thomas for their assistance. Dr. Stephen Evelyn's excellent efforts in giving the anaesthetics are gratefully acknowledged. The Trustees of the Toronto General Hospital very kindly provided space for these patients. Otherwise this work was carried on with private funds and without other assistance, except for limited facilities provided by the Banting Institute.

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COMPLETE HEART BLOCK IN YOUNG PEOPLE

BY

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Persistent complete auriculo-ventricular heart block is rarely seen in young people, and when it does occur it is almost always congenital. Cardiac irregularities, with varying degrees of defective conduction between auricles and ventricles, are not uncommon during the course of diphtheria, acute rheumatism, and occasionally other infections. If complete heart block develops, however, the usual outcome is either recovery, with restoration of normal rhythm, or death.

We describe in this paper three cases of persistent complete auriculo-ventricular block in young people. The first case (O. C.) came under our observation at the age of 12 years ; the second (J. M. D.) when she was 17, though the pulse rate was known to have been slow from the age of 7 ; and the third, a male (D. R.), when he was 18 years old, though his cardiac condition was noted a few weeks after birth.

The following review of the literature shows the comparative rarity of complete auriculo-ventricular heart block even in adults. White (1944) states that 10,000 patients with cardiac signs or symptoms were examined by electrocardiograph at Massachusetts General Hospital: auriculo-ventricular heart block was diagnosed in 641, and of these 79 (0.79% of the total) had complete heart block. He thinks that cases of acquired complete heart block except those due to coronary disease are rare. Yater (1929) described 30 cases of congenital heart block. Jaleski and Morrison (1943) state that up to 1942 only 80 cases of congenital complete heart block had been described ; they reported two cases in female patients aged 20 and 21, both living normal lives, in whom the lesion was diagnosed at the age of 6 years and a few months respectively.

Campbell and Suzman (1934) reported 8 cases between the ages of 12 and 33 years. Campbell (1943) had followed up these 8 cases, and of the 7 alive all were in good health and were then between the ages of 22 and 42 years. He states that few of the reported cases of congenital complete heart block have been over the age of 20 years. Leys (1943) described a girl of 23 with complete heart block, dextrocardia, and septal defect. The dextrocardia had been known for some years, but the heart block was first noticed at the age of 20. Peel (1943) reported a similar case in a woman still in good health at the age of 46. The lesion was diagnosed at the age of 38, though at 5 her heart was known to be defective.

Most authors agree on the even greater rarity of persistent post-diphtheritic complete heart block. Jones and White (1928) investigated 100 cases who had suffered from diphtheria at least five years before. In this series the electrocardiograms did not show one example of complete heart block. Fishberg (1940) states that he has seen only one patient surviving the appearance of complete heart block in diphtheria. He refers to 19 cases described by Stechner in 1928, all of which were fatal.

Leys (1945), however, reported a case of complete dissociation of auricle and ventricle in a married woman aged 25 who had had severe diphtheria with palatal and ocular palsies at the age of 10. The available evidence suggested that the lesion was diphtheritic in origin, but proof of a normal heart before the infection was not available. Cookson (1945) investigated 83 cases of diphtheria and stated that the cardiac lesion, however severe, clears up completely if the patient survives; exceptions to this rule are extremely rare.

Case Reports

Case 1.—O. C. attended the children's out-patient department of the Leeds General Infirmary in November, 1929, at the age of 6 on account of her obesity. She was regarded as a case of pituitary dysfunction, but there was no record at that time of the pulse rate or cardiac findings. She was seen again early in March, 1935, suffering from psoriasis, and her notes record a pulse rate of 60 per minute. Almost immediately afterwards (March 13, 1935) she was admitted to the Seacroft Infectious Diseases Hospital, Leeds, with moderately severe faucial diphtheria, which was uncomplicated; the pulse rate on admission varied between 40 and 58 per minute. Three weeks after her discharge on Sept. 7, 1935, when she again attended the Leeds General Infirmary, an electrocardiogram (Fig. 1)

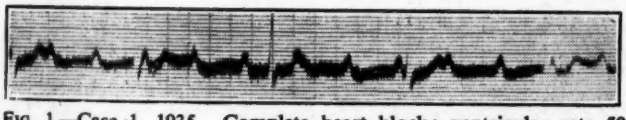

FIG. 1.—Case 1, 1935. Complete heart block; ventricular rate 50 per minute (lead II).

showed complete heart block with ventricular rate of 50 per minute. She lived a normal life with few complaints until June, 1944; she then began to have attacks of "light-headedness," but without actual fainting or loss of consciousness; these have persisted.

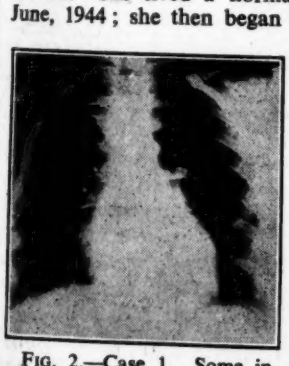

FIG. 2.—Case 1. Some increase in transverse cardiac diameter.

She has recently been admitted to St. James's Hospital, Leeds, with the diagnosis of high-grade mental defective. Her present weight is 13 stone 12 lb. (87 kg.), and her obesity is of the pituitary type. The heart is slightly enlarged to the left, and a loud blowing systolic bruit can be heard all over the praecordium; B.P. is 130/80; lungs, abdomen, and C.N.S. are normal. Skiagram (Fig. 2) of chest showed normal lung fields, some increase in the transverse cardiac diameter, but no posterior enlargement. Blood count showed no anaemia or alteration in white-cell count; B.M.R. was +2. Electrocardiograms taken at intervals during 11 years have always shown a complete heart block with a ventricular rate of about 40 per minute (Figs. 3 and 4).

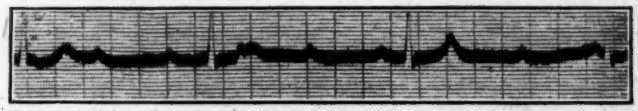

FIG. 3.—Case 1, 1940. Complete heart block; ventricular rate about 40 per minute (lead II).

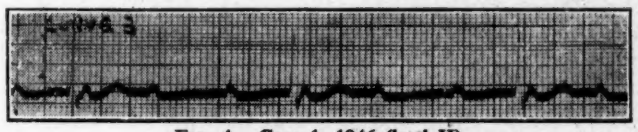

FIG. 4.—Case 1, 1946 (lead II).

This is considered to be a case of congenital complete heart block with ventricular septal defect complicated by pituitary dysfunction and high-grade mental deficiency. The attacks of dizziness are regarded as of the Stokes–Adams type, and it is noteworthy that these did not appear until she was 21 years old—nine years after the complete heart block had been demonstrated cardiographically; moreover, apart from her mental condition her general health is unimpaired. Particularly interesting is the comparatively high ventricular rate up to the age of 13; it probably accounts for the lesion not being diagnosed in spite of the fact that the patient was attending hospital for various other conditions.

Case 2.—J. M. D., a single girl, was first seen on June 6, 1944, at the age of 17 complaining of transient attacks of "light-headedness" without loss of consciousness. She gave a history of diphtheria at the age of 7, for which she was treated at the City Fever Hospital, Bradford. This attack apparently was severe, for she was kept in hospital for a period of 80 days, and her mother was told that the state of the child's heart was endangering her life. Palatal paralysis also occurred. She had a year's convalescence before being allowed to go back to school. For five years she was free of symptoms, but at the age of 12 her present symptoms appeared—i.e., attacks of transient dizziness. These do not seem to cause her much inconvenience, and her general health is good. She is in regular employment as an office clerk.

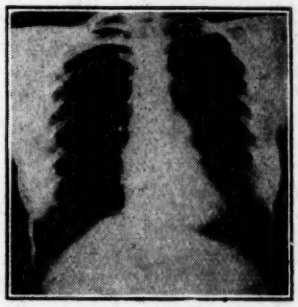

FIG. 5.—Case 2. Cardiac outline normal.

Physical examination revealed a slim girl who weighed 7 stone 5 lb. (46 kg.). The radial pulse was regular at 42 beats per minute; the heart was normal in size, and on auscultation presented no abnormality except a short basal systolic bruit; the B.P. was 120/75; a skiagram of the chest (Fig. 5) showed no lung lesion, and the cardiac outline was normal in size and shape; the blood count and B.S.R. were normal. An electrocardiogram (Fig. 6) showed complete dissociation between auricles and ventricles, with auricular rate of 80 and ventricular rate of 42 per minute. There is no earlier electrocardiogram, but the general practitioner commented on the slowness of the pulse after the diphtheria. The girl's condition has remained unchanged since 1944; she continues her work as an office clerk and lives a normal life; serial electrocardiograms show no change in the block (Figs. 7 and 8).

This case is one of persistent complete heart block which has certainly been present from the age of 7 to the patient's present age of 21. The lesion was first noted after a severe attack of diphtheria at the age of 7; there is no record of the heart rate before this. The patient's own medical practitioner, however, tells us that before the diphtheria the rate was normal, that this was observed during the course of several small ailments,

and that he compared and contrasted the heart condition on her return from the fever hospital with that before her return. The patient's general health has not been affected although she has had the lesion for 14 years. The attacks of faintness are regarded as those of Stokes–Adams type ; they first appeared five

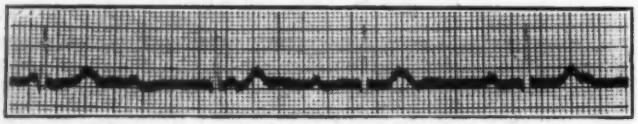

FIG. 6.—Case 2, 1944. Complete heart block; ventricular rate 42 per minute (lead II).

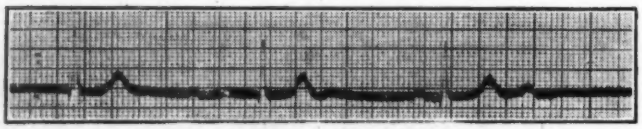

FIG. 7.—Case 2, 1945 (lead II).

FIG. 8.—Case 2, 1946 (lead II).

years after the slow pulse was noted. The severity of the attack of diphtheria, the fact that the cardiac condition was regarded as grave at the time, and the absence of an associated congenital lesion raise the possibility that this is a post-diphtheritic lesion.

Case 3.—A young man (D. R.) was first seen on Nov. 22, 1946 ; he was then 18. His father stated that he had been told shortly after the child's birth that the heart was defective. The patient never suffered from rheumatism, chorea, or diphtheria, and throughout his boyhood he was free of symptoms. He went away to boarding-school and has since been doing heavy work on his father's farm. In February, 1946, he developed a pyrexial illness. The abnormal temperature lasted three days ; on the tenth day the patient had an epistaxis followed by a series of faints occurring as often as one every minute. After three days these ceased ; he has had none since. However, he

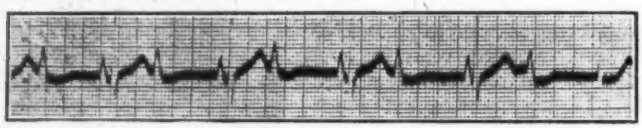

FIG. 9.—Case 3, 1946. Complete heart block; ventricular rate 42 per minute (lead II).

has never completely recovered from this illness and has since been listless, disinclined to do much, and readily fatigued.

Examination revealed the presence of aortic incompetence with a long diastolic murmur down the left border of the sternum and a systolic bruit at the apex. The skiagram showed considerable left ventricular enlargement ; the B.P. was 170/60 and in keeping with the valve defect. The electrocardiogram (Fig. 9) showed complete heart block with a ventricular rate of 42 per minute.

This is regarded as a case of congenital aortic incompetence with complete heart block. For 17 years the patient was symptom-free until February, 1946, when he developed fainting attacks of the Stokes–Adams type followed by incipient heart failure.

Summary

Three cases are recorded of complete heart block, which was first noted at the ages of a few months, 7 years, and 13 years respectively. In all of these there is a history of transient attacks of faintness first manifest at long intervals (17, 10, and 9 years) after the heart block was discovered. In two of the three cases there is an associated congenital heart defect: in one, patent ventricular septum ; in the other, aortic incompetence. The third case is regarded as free from a congenital heart lesion.

Two of the three cases are in good general health. The third case has led a normal life (including, up to the age of 17, five years at a boarding-school and two years working on a farm) although the lesion was noted shortly after birth.

Two of the cases (1 and 2) had diphtheria ; two of the three cases (1 and 3) are certainly of congenital origin ; Case 2 is regarded as diphtheritic in origin.

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TONSILLECTOMY AND ADENOIDECTOMY UNSATISFACTORY RESULTS DUE TO CHRONIC MAXILLARY SINUSITIS

BY

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Ayrshire, 1,132 square miles in extent, partly industrial and partly rural in character, has a pre-school population of approximately 23,000 and a school population of approximately 47,000. In this county since 1936 the local authority has reserved a minimum number of 25 beds for such children as have required operative treatment for affections of the ear, nose, and throat. The number of beds at present so reserved is 34.

In the case of the children who have been dealt with under the treatment scheme in question—children who have been referred by the school medical officers or by private practitioners—the notes about the operations and the follow-up notes were made by the operator himself. The case histories were taken under the supervision of one person—the matron in charge of the hospital.

It became more and more apparent during recent years that a considerable proportion of the cases which were referred for operative treatment of tonsils and adenoids had failed to benefit thereby, even though the operations were technically perfect. With increasing frequency children who had been operated upon months or years previously were referred afresh by school medical officer or family doctor, disgruntled parents declaring that the child's signs and symptoms were much as they had been before operation or that they had become more pronounced. The position was studied, therefore, and it became evident that the unsatisfactory results were due to infection of the maxillary antra.

The following data were derived from the cases of chronic maxillary sinusitis found among the total number of cases referred for tonsillectomy and adenoidectomy in 1946. Of the 1,779 cases operated upon that year—boys and girls in equal proportion—for the removal of tonsils and adenoids, 442 (or 25% of the total) were considered to have sufficient signs or symptoms, or both, to warrant the proof-puncturing of both antra immediately before operation. (The method used was to continue lavage through the antral cannula with normal saline until all traces of pus had disappeared. Swabs were taken at once from the gross pus and sent for culture. In 106 cases no pus was

collected, because in some it passed into the nasopharynx and was swallowed or contaminated, and in others no actual infection was present. Incompleteness of reports in 24 of these 106 cases brings the number to be considered down to 82. In the remaining 336 cases—i.e., in 19% of the 1,779 cases—the material was grossly purulent, mucopurulent, or mucoid. A number of the results of swab examination were lost, however, and some of the case histories were incomplete, so that for these and related reasons 46 cases have to be deducted. The number of cases on which this paper is based is therefore 290, or 16% of the total.

Signs and Symptoms

In recording the signs or symptoms *noticed by parents* attention was paid to such matters as headaches, pyrexia of short duration and unknown origin, and repeated "bronchial attacks"—not true attacks of bronchitis—characterized by pyrexia and a hacking spasmodic cough. The following code was used: (1) Interference with breathing, day or night; mouth breathing; snoring. (2) Alteration of voice. (3) Pain in, or discharge from, ears. (4) Cervical gland enlargement. (5) Sore throat. (6) Mucopurulent nasal discharge. (7) Night terrors and restless sleep. (8) Spasmodic cough. (9) Frequent colds.

In Table I is given the total percentage incidence of each of the nine items which are covered by the code in *(a)* a random sample, 2,000 in number, of the cases of tonsillectomy and adenoidectomy dealt with over the past seven years; *(b)* 290 cases in which pus was present in the antra and was washed out at the time of tonsillectomy and adenoidectomy; and (*c*) 82 cases in which no pus was found, although expected on clinical grounds. In each of the three groups the total percentage incidence of certain infectious diseases is also given.

TABLE I

	Code Number									Infectious Diseases				
	1	2	3	4	5	6	7	8	9	Scarlet Fever	Diphtheria	Measles	Whooping-cough	Pneumonia
Percentage in group (*a*) ..	69	60	15	30	64	46	6	7	64	12	8	50	20	1
„ (*b*) ..	57	44	19	17	36	48	27	36	59	5	3	60	33	9
„ (*c*) ..	73	46	31	21	46	57	29	39	74	6	2	64	32	6

It is of interest to note that glandular swelling was twice as common in uncomplicated cases as in cases with sinusitis, and that night terrors and spasmodic cough were five times more common in the latter group than in the uncomplicated cases. Certain signs and symptoms—viz., those indicative of sinusitis—noticed by the nurse, the surgeon, and the anaesthetist were also recorded. Thus the nurse, on the morning of the operation, made each child blow his nose into a swab; each case in which there was considerable purulent discharge was recorded as "dirty nose." The surgeon recorded the presence of such signs as nasopharyngeal discharge of purulent or mucopurulent material; pus under, around, or above the inferior turbinals; dermatitis of the nasal vestibule and of the upper lip; and a pinkish tinge of all the structures of the middle ear. The anaesthetist kept in mind the fact that there is a greater tendency for a patient with maxillary sinusitis to cough in the initial stages of anaesthesia with ethyl chloride or gas, oxygen, and trilene, and that when a direct laryngoscope is used for endotracheal intubation the anaesthetist commonly notices a marked general congestion of the larynx and the presence of copious pus.

Operation Findings.—These are given in Table II. The condition of the tonsils is classified as follows: (1) Tonsils "normal": no macroscopic evidence of sepsis on closing the guillotine. (2) Tonsils "septic": some pus extracted on closing the guillotine. (3) Tonsils "very septic": large quantities of pus extracted on closing the guillotine. Of the adenoids, one + sign indicates a normal quantity of tissue, two + signs a mass causing considerable obstruction, and three + signs a very large mass.

TABLE II

Operation Findings	Tonsils Normal	Tonsils Septic	Tonsils Very Septic	No Adenoids	Adenoids +	Adenoids ++	Adenoids +++
Percentage in group (*a*)	23	50	27	27	18	46	9
„ (*b*)	11	66	23	24	61	14	1
„ (*c*)	3	55	42	8	60	32	—

It will be noted that in group (*b*)—cases complicated by the presence of sinusitis—the incidence of abnormal tonsils was high (89%) whereas that of abnormal adenoids was low (15%).

Post-operative Findings.—The throats, which were examined night and morning during the 48 hours after operation, showed much more purulent material in the complicated cases than in the uncomplicated. There were long streams of purulent discharge flowing down the posterior pharyngeal wall, and the nasal discharge was often profuse also.

Seasonal Incidence.—There was no appreciable difference, month by month, in the proportion of the complicated cases in relation to the total number.

Sex Incidence.—Boys constituted 54% of the 290 cases, girls 46%.

Locality.—The 290 cases with sinusitis came from 56 different towns or villages. The county medical officer of health, whose comment was invited, replied that he could find no ruling factor.

Social Position.—This appears to have no bearing on the incidence of the condition, for the percentage of complicated cases was 22% of a smaller series of tonsil and adenoid operations done in nursing-homes during the same year.

Age Incidence.—This is shown in Table III. So few cases fell in the last two age groups that the percentage figures shown are of little value.

TABLE III

Age in Years	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Per cent of total (1,779)	12	19	28	16	22	25	17	13	16	18	25	11	14	14	25

Bacteriological Findings.—One single type of organism was present in 35% of the cultures, while 2, 3, or 4 different organisms were present in the others. The most common single type of organism was *Streptococcus viridans*, which was found in 11% of the total. *Micrococcus catarrhalis* was present in 49% of all the cultures, *Str. viridans* in 38%, diphtheroids in 25%, *Staphylococcus albus* in 23%, *Staph. aureus* in 17%, haemolytic streptococci in 8%, pneumococci in 6%, *Bacterium coli* in 1%, *Pseudomonas pyocyanea* in 0.7%.

Results of Treatment

The children were asked to report at follow-up clinics three months after the date of operation. Cure was considered to be complete when all signs and symptoms had disappeared, the opinion being confirmed by radiographic examination in many cases. Of the 290 cases 29 failed to report, 133 were completely cured, and 128 were still unsatisfactory. Of the 82 children in group (*c*), from whom no pus was obtained on washing out the antra at the time

of tonsillectomy and adenoidectomy although the clinical picture suggested that it was present, 78 attended again, and of these 64 were cured and 14 still showed clinical and radiographic evidence of chronic antral infection. Investigation failed to show that it was easier to eliminate one particular organism or group of organisms than another.

Before 1946 the use of Proetz suction with 0.5% ephedrine in normal saline gave some satisfactory results, but this method was not found suitable for the great majority of these cases because of the large area over which the patients were scattered and the need for repetitions of the treatment. Instillation, after antral wash-out, of "sulfex" and penicillin (10,000 units in 1 ml. of fluid) into different series of cases proved to be no more effective than ordinary antral wash-outs, nor did the use of neutral acriflavine or boric-acid lotion prove to be superior to normal saline.

The unsatisfactory cases reported once weekly for an antral wash-out under general anaesthetic. If the condition was not clear by the time six wash-outs had been given, the children were admitted to hospital for a double antrostomy; this was followed by five days' treatment by chemotherapy and full doses of penicillin. It is too early yet to assess the results of this last method of treatment.

Comment

Adenoidal enlargement, which in this area at least has been seen much less often in recent years, is certainly not related to sinusitis in children, but diseased tonsils *are* closely associated with the condition, although there is no indication whether tonsils or sinuses are diseased first. During 1946 about 50% of the cases of sinusitis were cured by one antral wash-out combined with the removal of tonsils and, when present, adenoids. Whether the antral wash-out was necessary is problematical, but during the present year no antral wash-outs are being done at the same time as tonsillectomy and adenoidectomy. This year the cases of clinical chronic sinusitis are being noted, and the parents are being informed that a nasal condition is also present and that they will be asked to bring their children back in three months' time. It is hoped in a year's time to give comparative figures for cases of chronic sinusitis treated by tonsillectomy and adenoidectomy alone.

Summary

Analysis of the 1,779 cases in Ayrshire operated on for tonsils and adenoids in 1946 has shown that unsatisfactory results following tonsillectomy and adenoidectomy are due, in the great majority of instances, to the presence of chronic maxillary sinusitis, a condition which in children is often associated with night terrors, restless sleep, chronic cough, headache, and pyrexial attacks of short duration. Maxillary sinusitis in children of this particular area does not appear to have any direct connexion with climate, diet, housing conditions, previous infectious diseases, or infection with any particular organism.

I should like to acknowledge the help given to me by the Matron and the nursing and clerical staffs of Seafield Children's Hospital, Ayr, in compiling the figures recorded above.

The Registrar-General announces that from Monday, Dec. 15, a new and short form of birth certificate, costing sixpence, will be available showing only the name and surname, sex, date of birth and (where possible) place of birth. There will be no particulars of parentage or adoption. In the case of births registered in England or Wales application can be made to the Superintendent Registrar of the district in which the birth occurred or to the General Register Office, Somerset House, London, W.C.2. A short certificate can also be obtained from the local Registrar at the time of registration of the birth. Where births have been registered abroad and entered in Army, Air Force, Consular, or Marine records deposited with the Registrar-General, certificates can be obtained only from the General Register Office, Somerset House. This applies also to certificates relating to adopted children.

Medical Memoranda

"Spontaneous Rupture" of Spleen Associated with Infective Mononucleosis

Although it is well known that spleens that are enlarged in fevers such as malaria are very easily injured, the following case of so-called "spontaneous rupture" in infective mononucleosis seems rare enough to be worth recording.

CASE HISTORY

An airman aged 25 was admitted to hospital early one morning with the "provisional diagnosis" of a perforated peptic ulcer. He had been taken off a train in which he had suddenly become prostrated with severe abdominal pain. His previous movements are of interest: he had travelled in overcrowded trains for several hours, and on the last lap of the journey he had been sitting doubled up on a kitbag in one of the corridors. An hour or two before the onset of the acute symptoms he had experienced a mild pain in the left side which gradually passed off.

On admission he was found to be very restless and in too much pain to answer questions coherently. He was considerably shocked, and there was a board-like rigidity of the abdomen. The clinical picture was strongly suggestive of blood in the peritoneum, but it was difficult to reconcile this with the history given. The extreme restlessness was all against the presence of a perforation. The temperature was 100° F. (37.8° C.).

Laparotomy was performed through a right upper paramedian incision, and the peritoneum was found to contain a large quantity of dark blood. The spleen was twice the normal size, and there was a subcapsular haematoma, the capsule having ruptured near the lower pole of the organ. Splenectomy was carried out without difficulty and the abdomen closed.

Post-operatively, plasma and glucose-saline infusions helped to combat the shock, but later in the day the temperature rose to 102° F. (38.9° C.). A blood examination showed: R.B.C., 4,380,000 per c.mm.; Hb, 84%; colour index, 1; leucocytes, 29,600 per c.mm. (polymorphs, 44%; lymphocytes, 45%; monocytes, 11%); platelets, 512,000 per c.mm. The red cells were normal in all respects, but many of the lymphocytes were irregular in size. The result of a Paul-Bunnell test the following day was positive in serum dilutions 1 in 3 to 1 in 12, and negative from 1 in 24 upwards; this titre increased, and one week later there was a positive result from 1 in 3 to 1 in 24, with negative findings from 1 in 48 upwards.

During the first post-operative week the temperature "swung" between 102° and 100° F., and there were a few palpable lymph nodes in the axillae and left posterior triangle of the neck. The results of absorption tests against both guinea-pig kidney and ox cells were negative in dilutions from 1 in 3 upwards, suggesting a serum-sickness reaction.

Although the absorption tests did not give confirmatory evidence of glandular fever, the blood picture, then and subsequently, was characteristic of that disease. A later count showed: R.B.C., 5,100,000 per c.mm.; Hb, 100%; colour index, 1; leucocytes, 11,200 per c.mm. (polymorphs, 40%; lymphocytes, 57%; monocytes, 1%; basophils, 1%; eosinophils, 1%). Sections of the removed spleen revealed the normal splenic architecture and a gross infiltration of the parenchyma with lymphocytes and monocytes, all intermediate types being seen.

In the absence of a sufficient titre in the Paul-Bunnell reactions, and the fact that the absorption was not the type usually seen in infective mononucleosis, it is difficult to be certain of the diagnosis of infective mononucleosis. On the other hand the blood picture and splenic histology were characteristic of this disease. The patient had not been abroad, and at no time was there any evidence of malarial parasites.

Unfortunately this patient developed a left-sided pleural effusion which doubled his recovery time but did not affect his ultimate full recovery and return to duty.

COMMENT

The spontaneous rupturing of a spleen in glandular fever must be a comparative rarity, but this case proves it to be an actual possibility, the trauma having been no more than "subminimal." It would appear wise, therefore, to bear this in mind when treating known or suspected cases of this disorder and when diagnosing an unexplained abdominal crisis.

My thanks are due to Dr. J. H. Gubbin, medical superintendent, E.M.S. Hospital, Salisbury, for permission to publish this case.

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Graded Surgeon, E.M.S.

Reviews

PRELUDE TO MEDICINE

Medicine. Volume I. *The Patient and his Disease.* By A. E. Clark-Kennedy, M.D., F.R.C.P. Complete in two volumes. (Pp. 383. 20s.) Edinburgh: E. and S. Livingstone. 1947.

Dr. Clark-Kennedy has had an unusual career, for he is at the same time a fellow of a Cambridge college, a physician, and the dean of a London medical school. It is, therefore, not surprising that, with his intimate experience of different aspects of the teaching and practice of medicine, he has written an unusual book. There is reason to believe that he wrote much of it during the war, when the hours of waiting provided leisure to think, and the threat of imminent destruction prompted thought on the meaning of existence and the role of the physician in the prevention of sickness and premature death. Nevertheless the spirit of the university inspires him rather than that of the medical school, the university in which men of different faculties and disciplines meet in a single community and have the opportunity to share and test each other's ideas. The author's aim is to provide a philosophical foundation on which a knowledge of medicine can be built as experience accumulates. In this first volume he considers body and mind, symptoms and signs, heredity and environment, reactions of the body and the mind, and the nature of disease. The author admits that this "may seem a strange and unusual prelude to the study of clinical medicine. But the art of medicine is concerned with human bodies made of matter, transforming one form of energy into another. They are partly dominated by mind and individual personality. Everyone does live a finite life in space and time in a mysterious universe. It is natural and logical to start by considering the nature of matter, energy, life and mind, and the relationships which exist between them in so far as matter, energy, life and mind are really comprehensible to the limited capacity of the mind of man. Clinical medicine cannot altogether avoid metaphysics and philosophy."

The adult medical reader will enjoy this delightful book; there has been nothing quite like it since Trotter's writings. The author expresses himself clearly, and again and again excites our imagination by synthesizing information from widely different fields. Many will find it an excellent bedside book, an aid to knitting up the ravelled threads of the day. It is difficult to know how it will affect the beginner. We wonder whether its individualistic flavour will be altogether to the taste of the younger generation. It contains nothing about positive health, social medicine, or demography; in fact, as the subtitle indicates, the author is concerned with the patient and his disease. Though the cash nexus between patient and doctor may be broken, sickness must always remain a problem of the individual as well as of the community. Dr. Clark-Kennedy clearly presents the problem and the solutions which materialist and idealist have given to it.

L. J. WITTS.

FERTILITY

The Problem of Fertility. Proceedings of the Conference on Fertility held under the Auspices of the National Committee on Maternal Health. Edited by Earl T. Engle. (Pp. 254. $3.75 or 21s.) Princeton: Princeton University Press. London: Geoffrey Cumberlege (Oxford University Press). 1946.

This book consists of 17 papers presented at a conference whose main purpose was the discussion of recent investigations into the processes of reproduction in domestic animals. Only four of the papers are directly about human fertility, yet the book will be of great interest to medical practitioners, for the study of the comparative physiology of reproduction is fascinating in itself, and from it arise many possible suggestions for research and treatment in the human field—a point brought out clearly in the discussions that followed the papers. For example, it has been shown that in sheep and goats the survival power and speed of travel of spermatozoa in the female genital tract are lower when ovulation is stimulated by artificial means than at the time of natural oestrus, which prompts the question whether there is sometimes a similar explanation for the poor results which attend the use of gonadotrophic hormones in the treatment of the infertile woman. Again, the demonstration that thyroid treatment prevents the normal summer decline in spermatogenesis in rams, and that it raises the fertility of some bulls, is consistent with its reported beneficial effect in some cases of infertility in man.

The subjects discussed include patterns of oestrus cycles; the induction of ovulation and its mechanism and hormonal control in different species; the characteristics of cervical mucus in relation to menstruation and fertility; the viability and metabolism of bovine, human, rabbit, and equine spermatozoa; and artificial insemination in animals. Many of the advances and discoveries made by biologists and veterinary surgeons in recent years do not ordinarily come to the notice of the clinician and the clinical research worker, and the converse also is true; this book is a line of communication between the two groups. As a corrective to those who underrate the knowledge of our forebears A. R. Abarbanel pays a tribute to Dr. W. Tyler Smith, an Englishman who in 1855 described not only the cyclical changes in human cervical mucus but also the function of the cervical plug and the significance of its softening at the optimum time for conception; and J. W. Bartlett reports that artificial insemination was successfully carried out on a mare by an Arab chief as long ago as 1322. This volume is a worthy successor to that of 1945; the subject matter is different but of a high standard, stimulating as well as informative, factual rather than theoretical. It merits the attention of all those interested in human fertility.

T. N. A. JEFFCOATE.

MANUAL FOR THE TROPICS

Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas. Eighth edition. (Pp. 396. Illustrated. 7s. 6d.) London: H.M. Stationery Office. 1946.

This manual will continue to help medical men practising in the Tropics or in the Mediterranean or other sub-tropical countries. As Lieut.-Gen. Sir Alexander Hood notes in a short preface, the memoranda were originally compiled by Sir Andrew Balfour for medical officers serving abroad in the war of 1914–18 and expanded in two subsequent editions by Lieut.-Gen. Sir William MacArthur. For the present edition, which is anonymous, the text has been largely rewritten and brought up to date. As the title implies, the book is not a condensed treatise on tropical medicine but a selection of those points likely to be useful in the diagnosis, treatment, and prevention of some 40 or more diseases—accounts of which are arranged alphabetically—of the Tropics and sub-tropical lands, and it presents a digest of the varied medical experience of tropical conditions and diseases gained by the Army in the recent war.

The information about antimalarial drugs and modern ideas of treatment is well set out, though the reviewer does not consider that quinine should now ever be given intramuscularly. In the section on arthropod pests it would have been useful to have a brief note on "mites," which were so important in the war, and even one on "leeches," but space no doubt has been limited. The book is of convenient size and, unlike the seventh edition, bound in boards. There are 37 plates illustrating diseases and disease vectors, and a number of figures in the text. The use of D.D.T. against insect pests is described in an appendix, and there is a note on zoological nomenclature quoting the more important of the Articles of the International Rules of Zoological Nomenclature.

S. R. CHRISTOPHERS.

STUDY OF ALCOHOLISM

Recent Trends in Alcoholism and in Alcohol Consumption. By E. M. Jellinek, Sc.D. (Pp. 42. $0.50.) New Haven, Connecticut: Hillhouse Press. 1947.

The author is concerned with the fact that from time to time extravagant conclusions have been attached to observations on alcoholism which relate to highly specific and small units—conclusions which find their way into the news irrespective of whether they are based on superficial judgments or on proper investigation. His statistical study is intended to answer questions which are disturbing the public mind, and he analyses

consumption statistics, the rates of alcoholism in the adult population, the number of first admissions for alcoholic mental disorders to mental hospitals, and other indices of inebriety.

Dr. Jellinek points out that such a question as, "Is drinking on the increase?" lacks precision, since modifications in the consumption of alcoholic beverages may arise if the number of drinkers or individual consumption changes. Comparison of the consumption rates a head does not disclose the nature of the changes in the drinking habit of a nation or of a group within the nation. The entire increase in the rate of chronic alcoholism in America since 1930 has appeared in urban areas, while the rate in the rural areas has slightly decreased. Dr. Jellinek finds that a large consumption of distilled spirits and a small consumption of beer are together usually an indication that the drinkers are relatively few in number but individually are heavy consumers. He believes that in America approximately 3 drinkers out of every 200 become chronic alcoholics. He refutes the assertion that inebriety among women is increasing at a higher rate than among men, and states that while female inebriety increased during the war it has not increased faster than male inebriety, and the rates in both sexes remain far below those found before Prohibition. He finds no statistical evidence to support the impression that alcoholism has recently been occurring in younger people than formerly, and he considers that the significance of the description of first admissions for alcoholism to mental hospitals is more limited and less definite than the statistical estimates of chronic alcoholism, since they relate to a highly selected portion of the alcoholic population and contain certain artifacts. He also believes that the "trend of death from alcoholism" does little more than reflect the progress of medicine in the treatment of the diseases of chronic alcoholism. The essay is clear and precise and should help to dispel some of the loose thinking which is occasionally apparent in discussions on alcoholism.

W. NORWOOD EAST.

LIVER DISEASE

Nouvelles Études Cliniques et Biologiques sur la Pathologie du Foie. By Étienne Chabrol. (Pp. 184; 24 figures. 250 francs.) Paris: Masson et Cie. 1946.

The writer of this review (and of many unsigned in this *Journal* in the past) has often drawn attention, and does so again, to the isolated and independent point of view expressed in French medical literature in comparison with that found in American, British, and pre-war German writings. Writers in these three countries express their ideas in similar terminology, though in their own tongue, and usually discuss their subject in fundamentally the same way. French writings reveal a quite different outlook, and, except for a few classical and often old papers, the Frenchman seldom refers to any literature except his own. We probably miss much by somewhat neglecting modern French medical writing, but the Frenchman seems to miss more if, as we may assume by his omitting the references, he is unfamiliar with the work being done in other countries.

This volume by the well-known Prof. Chabrol, of Paris, contains a series of essays on different aspects of the clinical pathology of the liver. In some of them he discusses the recent work, essentially French in its origin, on the lipoids of the blood and the esterification of cholesterol in hepatic disease. In a chapter entitled "La Maladie de Hanot Existe-t-Elle?" he discourses on the study of an old French conception. In other sections he considers the premonitory haematurias of cirrhosis, hepatitis "en tache de bougie," the curable anasarca of jaundice, hepatic colic in heart disease, and so on. Such chapters reveal, as we have suggested, an approach quite different from ours to hepatic disease, and a terminology to which we are not accustomed. The whole book is of great interest and value to a student of diseases of the liver, but the ideas expressed require considerable rearrangement if we are to interpret and correlate them with our own.

J. W. MCNEE.

The Minister of Health has accepted further recommendations of the Mental Nurses Subcommittee (Notes No. 9, H.M.S.O., 9d.) and has informed the relevant authorities that the additional expenditure incurred in adopting these recommendations will be met in the usual way by an Exchequer grant.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Lehrbuch der Medizinischen Entomologie. By Prof. Dr. E. Martini. 3rd. ed. (Pp. 633. Paper covers, Rm.27; stiff covers, Rm.29.) Jena: Gustav Fischer. 1946.

A profusely illustrated textbook of the insects met with in medicine.

Kurzes Handbuch der Ohrenheilkunde. By Prof. Dr. Hermann Marx. 2nd ed. (Pp. 888. Paper covers, Rm.46; stiff covers, Rm.48.50.) Jena: Gustav Fischer. 1947.

A textbook of diseases of the ear, nose, and throat.

Manual of Physical Diagnosis. By E. B. Freilich, M.D., F.A.C.P., and G. C. Coe, M.D. 3rd. ed. (Pp. 351. $5 or 27s. 6d.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

The clinical examination of patients; an account intended particularly for students.

Dark Legend: A Study in Murder. By F. Wertham. (Pp. 119. 6s.) London: Victor Gollancz, Ltd. 1947.

A study of a boy who killed his mother.

Personality and Problems of Adjustment. By Kimball Young. (Pp. 868. 35s.) London: Kegan Paul, Trench, Trubner and Co. 1947.

An account of the development of the individual from childhood onwards in society.

Your Health in War and Peace. By J. Halliwell. (Pp. 60. 2s. 6d.)

Essays in popular journalism on various aspects of health.

Emotional Problems of Living. By O. S. English, M.D., and G. H. J. Pearson, M.D. (Pp. 438. 16s.) London: George Allen and Unwin. 1947.

A psycho-analytic account of mental development; intended for the intelligent reader untrained in psycho-analysis.

Old Age: Its Compensations and Rewards. By A. L. Vischer, M.D. (Pp. 200. 12s. 6d.) London: George Allen and Unwin. 1947.

Discusses the problems of ageing and the aged; for the layman.

Genetics in Relation to Clinical Medicine. By F. A. E. Crew, M.D., D.Sc., Ph.D., F.R.S., F.R.C.P.Ed. (Pp. 111. 10s.) Edinburgh and London: Oliver and Boyd. 1947.

Intended to instruct medical students and postgraduates taking the D.P.H. in the role played by genetic factors in the causation of disease.

Peace of Mind. By J. L. Liebman. (Pp. 203. 8s. 6d.) London: William Heinemann. 1946.

A discussion for the layman of problems in human conduct.

Chiropody To-day. By E. S. and F. Boothway, M.A.C.Ch., L.Ch. 2nd ed. (Pp. 141. 7s. 6d.) London: Hutchinson. 1946.

An introduction to the practice of chiropody.

The Chess Pilot. By J. Mieses. (Pp. 64. 3s. 6d.) London: Williams and Norgate. 1947.

An introductory account of the openings in chess.

Stammering. By K. Emil-Behnke. (Pp. 97. 6s.) London: Williams and Norgate. 1947.

An account of stammering and its treatment.

The American Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D., F.A.C.S. 21st ed. (42s. indexed; 40s. plain.) Philadelphia and London: W. B. Saunders Company. 1947.

Many new terms from war medicine, pharmacology, and nuclear physics are included in this edition.

Vade Mecum of Medical Treatment. By W. Gordon Sears, M.D., M.R.C.P. 5th ed. (Pp. 407. 10s. 6d.) London: Edward Arnold. 1947.

A summarized account of the treatment of those diseases met with most commonly in general practice.

Wayfarers in Medicine. By W. Doolin. (Pp. 284. 21s.) London: William Heinemann. 1947.

Essays on unusual subjects in medical history.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY DECEMBER 6 1947

STREPTOMYCIN IN TUBERCULOUS MENINGITIS

Streptomycin does two things which penicillin does not: it acts vigorously on almost all Gram-negative bacilli and on the tubercle bacillus. Grave infections such as meningitis or septicaemia due to Gram-negative bacilli are comparatively rare, hence streptomycin as a life-saving agent finds its principal use in tuberculosis. The study of this form of treatment was for some time pursued exclusively in the U.S.A.; some account of the results, as communicated to a conference in London this summer, was given recently in this *Journal*.[1] Among other published accounts is that included in a general report on streptomycin therapy[2] by the National Research Council of the U.S.A., and one by H. C. Hinshaw and his colleagues[3] on the results obtained in 100 cases of various forms of the disease. Apart from clinical work, the careful experimental studies of W. H. Feldman[4] have shown that streptomycin has a remarkable effect on the disease in guinea-pigs, even under the most severe conditions, such as intravenous inoculation with a large dose of bacilli or the deferment of treatment until six weeks after inoculation by the ordinary route. These studies afford a sound basis for attempting the treatment in man and answer a number of questions which naturally arise in this connexion. Feldman showed, for instance, that 10 strains of *Myco. tuberculosis*, of which 2 were bovine, all reacted alike, and brought out the interesting point that tubercle bacilli do not acquire resistance to the drug in guinea-pigs, although this is unfortunately a common occurrence during the treatment of human patients. He also studied the response to different dosage intervals, with somewhat surprising results which have yet to be duplicated in the clinical field.

Clinical experience in the U.S.A. has provisionally defined the indications for streptomycin treatment fairly clearly. In general it is not indicated in chronic forms of the disease or in cases with a good prognosis apart from such treatment. The second proviso is dictated not merely by the need for economy but by the risks involved, which must be balanced against those of the disease itself. R. F. Farrington and his colleagues[5] have found that streptomycin of a high degree of purity has almost all of the toxic effects which it was hoped to be able to attribute to impurities in earlier products. Hence the more acute and severe the infection the clearer the indication for streptomycin, and it was natural that the clinical trials embarked on at a limited number of centres in Great Britain at the beginning of this year should be restricted to cases of miliary tuberculosis and of tuberculous meningitis. Pending a report on the results obtained here, it is of great interest to hear of further extensive experience in another country, and we publish in the opening pages of this issue an account by R. Debré and his colleagues of the treatment of no fewer than 118 cases of tuberculous meningitis at the Hôpital des Enfants Malades in Paris. Their paper gives only a general survey of this extensive material, but many details of each individual case are tabulated and will provide much information for those more closely interested in this subject.

These authors first emphasize the necessity for early diagnosis, contrasting this with an evident reluctance to take the necessary steps to this end which existed before any effective treatment was available. Actual coma is the only quite hopeless prognostic sign, but the earlier treatment is begun the better, and lumbar puncture to detect "latent" meningitis is indicated in any patient with signs of miliary spread. Emphasis is laid on the value of retinoscopy in diagnosis. The specific results of diagnostic lumbar puncture are disappointing in this series. That tubercle bacilli should have been found in films of only 41 cerebrospinal fluids among 90 definite cases of tuberculous meningitis is out of accord with experience elsewhere. It should be possible to find them in a much higher proportion of cases, if not in all. As these authors remark, it is almost always possible to confirm the presence of tubercle bacilli by cultivation, and the culture then affords equivalent if belated justification for treatment. It is not clear whether in the 13 cases in this series in which the diagnosis apparently rested on clinical grounds alone cultivation of the cerebrospinal fluid was omitted, or failed.

Treatment was first attempted by the administration of comparatively large doses, using both the intramuscular and intrathecal route. The maximum dose mentioned—200,000 units per kilogram of body weight per day—is equivalent to a daily dose of about 10,000,000 units (10 g.) in an adult, and is thus two or three times greater than the maximum dose advocated by American authors. This system of treatment produced an "embarrassing situation" in which the symptoms and signs of a new "experimental disease" had to be distinguished from those of the disease being treated. The manifestations attributed to streptomycin intoxication include fever, rapid loss of weight, somnolence and mental changes, deafness, skin eruptions, and meningeal reactions, including rigidity and even convulsions as well as cerebrospinal-fluid pleocytosis. Deafness, which may be very difficult to detect in unconscious or semi-conscious patients, was produced in 15 cases: this is of course the most serious of the known toxic effects of streptomycin. There appear also to have been serious reactions at the sites of injection, including abscess formation. When this heroic treatment was perforce abandoned the change is described as "a veritable resurrection." The scheme of treatment was then changed: doses of the same order were given for only one week, which is described as the "phase of attack." This is followed by the "phase

[1] July 26, 1947, p. 136.
[2] *J. Amer. med. Ass.*, 1946, **132**, 4, 70.
[3] Ibid., 1946, **132**, 778.
[4] *Trans. Studies Coll. Physic. Phil.*, 1946, **14**, 81.
[5] *J. Amer. med. Ass.*, 1947, **134**, 679.

of maintenance," during which smaller doses are continued by the intramuscular route only. If we understand Debré and his colleagues aright all the 46 survivors in this series are still receiving treatment, the duration of which now varies among them from 2 to 10 months. It must indeed, as they say, be difficult to know when to stop. Meanwhile a single ward which is more like a playroom owing to the liveliness of 46 children who ought to be dead must be a unique and very gratifying spectacle.

The ultimate prognosis in some of these patients must inevitably remain in doubt for some time. The hard core of success would appear to consist of 22 bacteriologically verified cases which have survived for 120 days or more. Deafness is recorded as a complication in 6 of them. The cell count in the cerebrospinal fluid has been found the most reliable guide to the state of the disease in these later stages. It is of course almost meaningless while intrathecal treatment is continued, since the drug itself causes a pleocytosis. A persistently raised protein content associated with failure to regain weight and activity suggests a block due to meningeal adhesions. It is particularly interesting that 6 such cases were operated on, with marked success in 2. This series takes us a long way further towards deciding whether streptomycin may or must be used in treating this disease. The provisional answer seems to be that no patient who has not reached the stage of coma should be denied its possible benefit. The best scheme of administration will probably not be decided on for some time. Meanwhile it is valuable to have the results of the new policy pursued here: maximal doses by both routes for a week only, followed by a maintenance dose intramuscularly, It may be doubted whether continuation beyond ten or perhaps six months or even less will ultimately be found worth while. It is known that *Myco. tuberculosis* often acquires streptomycin resistance during prolonged treatment, and success may well depend on killing a high enough proportion of the bacilli within the first few weeks. Estimations of the degree of resistance of bacilli cultivated post mortem from late fatalities should give important information on this point.

HIGH-TEMPERATURE SHORT-TIME PASTEURIZATION

Before the war only one method of pasteurizing milk was officially recognized in England and Wales. This was the so-called "holder process," in which the milk is held in a closed container for not less than 30 minutes at a temperature of 145–150° F. (62.8–65.6° C.), after which it is cooled to a temperature of 55° F. (12.8° C.) or below. The plant required for this process is bulky and expensive, and the time spent in filling and emptying the holder tank, in addition to the holding period itself, is considerable. During the warm summer of 1940 so much raw milk went sour before it reached the public that in the national interest measures had to be introduced to prevent further waste of a highly important article in the nation's dietary. Two steps were taken. With the assistance of the Ministry of Agriculture and the larger dairy companies the Ministry of Food sponsored an experiment for testing the keeping quality of milk. As a result a national milk-testing and advisory scheme was established by the Ministry of Agriculture, having the double object of educating the ignorant or careless farmer and protecting the creameries by allowing them to reject milk of very poor keeping quality. In the second place permission was given for the use of an alternative method of pasteurization that demanded less bulky and costly plant and that dealt with a much larger quantity of milk in a given time than the holder method.

The new method—High-Temperature Short-Time (H.T.S.T.) process—had been developed mainly in the U.S.A., where it had been officially recognized by certain health authorities for many years. The Ministry of Health regulations[1] governing its use in England laid down that milk to which the special designation "pasteurized" was applied should be retained at a temperature of not less than 162° F. (72.2° C.) for at least 15 seconds and be immediately cooled to a temperature of 55° F. (12.8° C.) or below. Since the method is a continuous flow process special injunctions had to be issued that the apparatus should be thermostatically controlled and be provided with a device that should automatically divert the flow of any milk which had not been retained at a temperature of 162° F. (72.2° C.) or over for at least 15 seconds.

Some concern was felt at the time about whether the safety margin of the H.T.S.T. process was as great as that of the holder process. It is true that laboratory observations had shown that the time–temperature combination enjoined was sufficient to bring about approximately the same degree of bacterial destruction as that caused by holding milk at 145° F. (62.8° C.) for 30 minutes, but no account had been taken of the lag period of response of the two main controlling instruments in the commercial plant, the automatic thermoregulator and the flow diversion valve. If, for instance, the lag period of these instruments was half a second, then one-thirtieth of the milk might pass through the heating section without being exposed to the full temperature of 162° F. (72.2° C.) for the whole time of 15 seconds. It was pointed out that reduction in thermometric lag might be achieved by the use of the thermocouple,[2] but it has been found that the speed of the thermocouple is too fast to enable the more slowly reacting heating system to be adjusted to it. However, the latest type of mercury-in-steel thermometer has a lag period of under half a second. The introduction in 1944 by the Ministry of Health[3] of the phosphatase test as a statutory test for the control of pasteurized milk was soon followed by the accumulation of results showing that the processing of the milk by the H.T.S.T. method was, in general, as satisfactory as that by the holder method. Even this, however, was insufficient to convince all dairy experts of the safety of the new process. Mr. Enock[4] drew

[1] Milk (Special Designations) Regulations, 1941, and Circular No. 242, Ministry of Health, London.

[2] Hiscox, E. R., *J. Soc. chem. Industr.*, 1944, **63**, 298.

[3] Heat-Treated Milk (Prescribed Tests) Order, 1944, Ministry of Health, London.

[4] Enock, A. G., *This Milk Business*, 1943, H. K. Lewis and Co. Ltd., London.

[5] Kay, H. D., Aschaffenburg, R., and Neave, F. K., "The Phosphatase Test for Control of Efficiency of Pasteurization," 1939, *Imperial Bur. Dairy Sci. Tech. Commun.*, No. 1.

[6] Kaplan, E., *J. Ass. offic. agric. Chem.*, 1943, **26**, 259.

attention to the almost complete absence of information on the effect of the H.T.S.T. process on the survival of tubercle bacilli under practical operating conditions. In the laboratory tubercle bacilli in milk are destroyed by exposure to a temperature of 162° F. (72.2° C.) in 9 seconds, or to a temperature of 159° F. (70.6° C.) in 15 seconds, but owing to the uneven flow of fluid through the heating pipe or plates it could not legitimately be concluded that in commercial processing the same results would follow; though it should be added, in parenthesis, that many dairy firms attempt to compensate for possible under-exposure by heating the milk to 162.5° F. (72.5° C.) for not less than 16 seconds. The fact, however, that the destruction of phosphatase in milk requires a slightly greater degree of heat than does the destruction of tubercle bacilli, and that the phosphatase test is usually negative on milk pasteurized by the H.T.S.T. method, led most workers to conclude that the objection raised by Mr. Enock was more of academic than of practical significance. In a matter, however, of such importance, it was felt that no doubt should be left, and the Chief Chemist to United Dairies, Ltd., therefore arranged with Dr. Porteous, of St. Mary's Hospital Inoculation Department, for a series of tests for tubercle bacilli to be carried out by the guinea-pig inoculation method on bulked milk before and after pasteurization by the H.T.S.T. process. The results are recorded in a letter to the Editor which we print on page 927.

Samples were taken from three different plants over a period of two years. Altogether 129 samples of milk that had been found to contain tubercle bacilli before processing were taken after pasteurization; every one of these responded negatively to the phosphatase test and was shown to be free from tubercle bacilli. This evidence indicates that in properly designed and properly operated plants of the H.T.S.T. pattern there is little risk of tubercle bacilli surviving the heat treatment. It is nevertheless dangerous to generalize too freely from limited observations, however conclusive their results may be. It is more difficult, for example, to make sure that the regulations are being complied with in an H.T.S.T. than in a holder type of plant, and undue reliance has therefore to be placed on the results of laboratory tests. These, of course, are based on the examination of samples representing only a minute fraction of the total amount of milk processed, and, if negative, can do no more than show that the milk at the time at which the particular samples were taken was being satisfactorily heat-treated. Moreover, trouble is occasionally met with in carrying out the phosphatase test, due to unsatisfactory quality of the chemical reagents, to the growth of phenol-producing organisms,[5 6] to the presence of bacteria capable of hydrolysing the substrate,[5] or to some other cause, leading in inexperienced hands to a possible false result. It would probably be wise, therefore, for health authorities to ask for a guinea-pig inoculation test to be carried out on a proportion, say 5%, of the pasteurized and heat-treated milks that they submit to the laboratory for examination, in order to make sure that the processing method, of whatever type it may be, is doing what it is in fact intended to do—namely, destroying all pathogenic organisms of importance in the milk.

PENICILLIN IN SCARLET FEVER

Recent reports advocating the use of penicillin in the treatment of scarlet fever make it worth while considering the nature of the problem to be attacked. Three factors must be borne in mind. To begin with, many of the initial signs and symptoms, such as rash, vomiting, oedema of the throat, and lymphadenitis, are almost certainly manifestations of a specific toxaemia calling for the early administration of a potent antitoxin. But even when shorn of its toxic element the disease process is not inactivated; the streptococci have not been bereft of their invasive power, and the patient may still develop otitis media or sinusitis as an extension of his tonsillitis. Finally, although he may have acquired some resistance to his own infecting organism, in the usual open ward he may be further subjected to persistent bombardment by the streptococci of his bed-mates, and a "late" otitis or sinusitis may further prolong his illness. The three risks of scarlet fever, then, are the primary toxaemia, the early endogenous invasion, and the late exogenous reinfection, and no one treatment is likely to combat all three. Thus antitoxin is often regarded with disfavour because otitis media, for which it bears little responsibility, still occurs after its administration. At present, when we are dealing for the most part with a disease in which the toxic element is not predominant, it should be appreciated that the effects of streptococcal invasion, whether primary or secondary, are of the greatest importance. Unfortunately, the sulphonamides cannot be relied on to deal with this invasion. Some workers have considered them of value, but French,[1] whose experiment was carefully controlled, was unable to show real benefit in cases of scarlet fever, and her study has never been effectively refuted. It is hard to say what this relative failure should be ascribed to, but despite the American work on chemoprophylaxis it seems possible that sulphonamides taken orally have little effect upon the tonsillar infection save to drive the organisms temporarily underground, only to reappear when treatment is stopped. Another point is that the inhibiting effect of pus, the natural sequence of streptococcal invasion, limits the value of sulphonamides in such conditions as sinusitis and otitis media.

Penicillin overcomes the latter disadvantage, yet presents other problems. Meads and his colleagues[2] studied a small group of cases and found that local therapy was inferior to parenteral; they regarded treatment for at least seven days as essential. Jennings and De Lamater[3] record the results of different methods of treatment in cases of scarlet fever infected with a type 17 *Str. pyogenes* resistant to sulphonamides. With such a pure strain infection no difficulties arose from cross-infection with different types, although, since the patients were all treated in the same ward, reinfection was still possible. When patients were given a daily dose of 100,000 to 200,000 units of penicillin for less than four days throat swabs became consistently negative on culture in only 6 out of 47 cases. When doses of the order of 400,000 units daily were administered over periods of from two to seven days cultures from 15 out of 24 cases became negative. In this penicillin-treated group 7 examples were seen of otitis media or mastoiditis: 3 had begun before penicillin was started, 2 occurred after the treatment had stopped, and 2 developed during its administration.

[1] *J. Hyg.*, 1945, **39**, 581
[2] *J. Amer. med. Ass.*, 1945, **129**, 785.
[3] *Amer. J. Med.*, 1947, **2**, 1 (Jan.), 1.
[4] *British Medical Journal*, 1947, **2**, 538.
[5] *J. infect. Dis.*, 1945, **77**, 68.

Though this therapeutic trial had many imperfections, certain conclusions may be inferred. Parenteral doses of penicillin of the order of 0.5 mega unit a day must be given for at least a week to be effective in ridding the patient rapidly of his streptococci. Such a dose may seem unnecessarily large, but sterilization of the tonsils does present peculiar difficulties which have already been noted in the treatment of diphtheria carriers with penicillin.[4] Even this dosage will not clear the throat of streptococci in all cases, and a few persistent carriers must be expected. In open wards such carriers would constitute a continuing danger to their companions. It would seem desirable, therefore, when penicillin treatment is stopped to search for these resistant cases and remove them from the ward. In this connexion the valuable work of Hamburger and his colleagues[5] on the nasal carrier should be recalled. Further, during their continued stay in the open ward even those who responded initially should have their throats swabbed again from time to time so as to detect early any patient who relapses. In this way the incidence of complications due to primary invasion should be diminished, and by effecting a reduction in the load of *Str. pyogenes* in the air of open wards some of the late complications of scarlet fever should be prevented.

COSMIC RADIATION AND CANCER

The suggestion that cosmic radiation, to which mankind is permanently exposed, may contribute significantly to carcinogenesis, as it has already been shown to contribute to the production of mutations, is not one which can be ruled out without investigation, however discouraging such a conclusion might be. It is probably because of the virtual omnipresence of cosmic radiation that the question has not before been put to the test. An attempt which has lately been made by Dr. F. H. J. Figge at the University of Maryland[1] is described by the author as preliminary, and his experimental results should therefore be regarded rather as a pointer to further investigation than as a demonstration against which no criticism could be advanced. The experiment consisted in a comparison of the latent periods of groups of methylcholanthrene-injected mice when kept in cages on different floors of a six-story ferro-concrete building and with or without one or more quarter-inch lead plates above their cages. The effect of the lead plates would be to distribute the energy of incident radiation among a larger number of particles, which individually would be of lower energy, and it might be expected that the more massive members of the building would also contribute if in lesser degree to this effect. Also, since the controls, with two exceptions out of 67, all developed tumours within the 22-weeks period of observation, the measurement was one of increased speed of development rather than of increased incidence. Three groups, totalling 65 mice, without lead plates averaged a latent period of 11.3 weeks; four groups, totalling 88 mice, with one lead plate, 8.7 weeks; and the remaining group of 22 mice, with two lead plates, 7.5 weeks.

Criticism could be advanced both against the small numbers of mice used in the experiment and the absence of physical information as to the variation in radiation between different groups. Also, as the author himself points out, it is clearly desirable that control observations should be made in a heavily protected laboratory in which effective exposure to cosmic radiation is substantially reduced. At least one such laboratory is available in Great Britain, and it may well seem that a sufficient case has been made out for Figge's suggestion to be followed up. It would also be of interest to compare the natural incidence of cancer in human populations at sea level and at high altitudes—for example, Quito in the Andes and the Tibetan plateau. Figures for the former are no doubt available, but whether they could be regarded as comparable in the absence of some special and long-term investigation might be open to question. In the meantime it should perhaps be made clear that, although a ferro-concrete building formed part of Figge's experimental arrangements, his figures give no indication of any significant difference between the results of residence in the top or bottom of the building.

[1] *Science*, 1947, **105**, 323.

PETROL FOR DOCTORS

The General Practice Committee of the B.M.A. has recently discussed with the Minister of Fuel and Power the effect on the medical man of the discontinuance of the basic petrol ration. Medical men naturally expect to share with the rest of the community the various hardships to which we are these days all exposed. But the motor-car is very much a part of the doctor's professional equipment. The doctor, and especially the general practitioner, is to all intents and purposes on duty twenty-four hours of the day. His opportunities for leisure and relaxation are few. It is, therefore, all the more necessary that he should seize what chance he may have of a break from work whenever he can, and no member of the public, we are sure, would grudge him this. Even when a doctor does break off from work he knows that he may be suddenly recalled by a patient in urgent need of help. It would seem, therefore, reasonable that a doctor should be able to go to a club or a cinema by car so that he can respond to a call on his services with the minimum of delay. The Minister of Fuel and Power has met this reasonable request of the General Practice Committee in a reasonable manner. The Minister rightly insists that a doctor using his car for social and recreational purposes should leave at his house exact information as to his whereabouts. And if a doctor has made alternative arrangements for his patients it would be clearly unjustifiable for him to use his car for social purposes. Regional Petroleum Officers have also been instructed that petrol may be allowed for doctors to attend B.M.A. and other professional meetings in their locality. As the Minister of Fuel and Power has recognized the special position of the doctors as consumers of petrol, medical men will, we feel sure, respond by not abusing the special facilities granted them.

THE MINISTRY'S HEARING-AID

Deafness may be prevented or cured by medical or surgical measures; its disabilities may be lessened by education or alleviated by mechanical devices. This natural division of the practical problems of deafness underlies the planning of the three Committees on deafness appointed by the Medical Research Council in April, 1944: the Medical and Surgical Committee, the Educational Committee, and the Electro-Acoustics Committee. The responsibilities of the last-named have been particularly heavy, concerned as they have been with the design not only of electrical hearing-aids but also of audiometric equipment for the accurate assessment of deafness. The recent publication of the

Committee's report,[1] completed in April, 1946, has been awaited with keen interest by all concerned with the welfare of the deaf. The Committee's problems have throughout been essentially practical ones demanding practical solutions, solutions moreover which could be based only upon the results of an extensive programme of investigation and experiment.

In the field of hearing-aid design the Committee has had to face the fact that the high cost of electrical hearing-aids has in the past debarred many from using them, a fact dependent in large measure upon the multiplicity of designs and methods of manufacture of commercial instruments. At the outset of its work, therefore, the Committee tried to find answers to two questions: first, was it possible to design a single type of hearing-aid suitable for the majority of deaf persons?; secondly, could such an aid be constructed in a form suitable for mass production? Theoretical considerations and the results of practical tests on various deaf subjects indicated the probable lines upon which such an aid should be designed; models were constructed, and their value was confirmed by means of extensive clinical trials. In the course of this work it was necessary to carry out comparative trials of a wide range of commercial hearing-aids, both British and American. As a final step several models of hearing-aids were constructed at the G.P.O. Research Station in a form suitable for mass production.

The M.R.C. Report contains a remarkable amount of technical information on the construction, performance, and instrumental testing of hearing-aids, and provides a close study of the principles and practice of their clinical testing. The tests developed by the Committee and fully described in the Report represent a well-considered combination of otological and telephone engineering practice, and it is hoped that they will find wide acceptance by otologists and others who prescribe hearing-aids.

Inquiries by the staff of the Social Survey into the incidence of deafness have been of much help in assessing the magnitude of the problem of the supply of hearing-aids in this country. These inquiries, initiated by the Medical and Surgical Committee on Deafness of the M.R.C., are designed to reveal not only the incidence of deafness in the various age groups but also its correlation with occupation, economic status, and aural pathology. The methods of the survey have been based upon the work of Beasley and his collaborators of the United States Public Health Department, and it is of interest to recall that, according to one of Beasley's many outstanding findings, some 1.2% of the population of all ages suffer from degrees of deafness disabling them from ordinary conversation. The findings to date of the Social Survey show that the corresponding figure in this country is at least as great; this suggests that there are half a million or more persons in this country who may benefit from hearing-aids. It is, however, necessary to stress that many of the deaf included in this number belong to the higher age groups. In them deafness is often due to senile and other degeneration of the internal ear, and so can seldom be satisfactorily corrected by electrical hearing-aids. The preface to the Report gives a timely warning against any expectation on the part of the deaf and their advisers that the hearing-aids recommended by the Committee are likely to prove of universal application: commercial hearing-aids will no doubt be a necessary supplement to the official models.

The Ministry of Health (*Journal*, Nov. 29, p. 893) is acting on the Committee's recommendations, and has made arrangements through the Ministry of Supply for the manufacture of large numbers of hearing-aids constructed in accordance with the Committee's specifications. With the coming into force of the National Health Service Act in July of next year these aids will be available at otological clinics throughout the country, and will be issued free on the recommendation of otologists to all deaf subjects shown to benefit from their use.

These measures for the relief of established deafness are of great practical importance, yet the early diagnosis and accurate measurement of deafness are no less vital both for prevention and for the control of treatment. The Committee's careful investigation of pure-tone audiometers, described in the second part of the Report, is therefore of particular significance. It is hoped that the proposal of the Ministry of Health to provide standardized and well-calibrated audiometers will have the effect of raising the standards of otological work throughout the country.

[1] Med. Res. Cncl. Sp. Rep. Ser., No. 261. *Hearing Aids and Audiometers. Report of the Committee on Electro-Acoustics.* H.M.S.O., 1s. 3d.

WHY PEEL?

After declaring that "it is essential to eliminate to the maximum practicable extent the wastage that occurs in the peeling and preparation of potatoes in the kitchen," the Minister of Education tells local education authorities in an Administrative Memorandum[1] how to peel potatoes. The Minister asks them to give strict instructions that potatoes should receive the briefest treatment in electric peeling machines "consistent with rendering them palatable," and that hand peeling and "eyeing" should be done with special care—indeed, the latter may be omitted if doing so does not cause potatoes to be wasted in the dining-room. The Memorandum adds that potatoes baked in their skins should be served as often as possible and experiments conducted with potatoes steamed in their skins.

The proportion of potato removed by peeling has been estimated as between 3 and 25%, an average being 14 to 16%,[2] and these peelings, of course, include part of the tuber's cortical layer. Moreover, potatoes boiled in their skins lose far less nutritive matter than peeled potatoes cooked in that way, and while there is a food shortage it is illogical to destroy a barrier that is "so resistant to high temperatures, and so absolutely impermeable."[3] Education authorities should try to persuade children to eat unpeeled potatoes.

We regret to announce the death on Dec. 1 of Sir John Fraser, Principal of Edinburgh University and Surgeon to the Edinburgh Royal Infirmary.

Mr. Aneurin Bevan, the Minister of Health, met the Negotiating Committee on Dec. 2 and 3.

Sir Arthur MacNalty, D.M., F.R.C.P., will deliver the FitzPatrick Lectures on "The History of State Medicine in England" before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday, Dec. 9, and Thursday, Dec. 11, at 5 p.m. In his first lecture he will discuss the medical department of the Local Government Board, and in his second the foundations of the National Health Service.

[1] Administrative Memorandum No. 253, Nov. 11, 1947.
[2] Bacharach, A. L., and Rendle, T., *The Nation's Food*, 1946, London.
[3] Med. Res. Cncl. Sp. Rep. Ser., No. 213. London: H.M.S.O., 1936.

The photographs on this page show the different processes involved in the manufacture of streptomycin

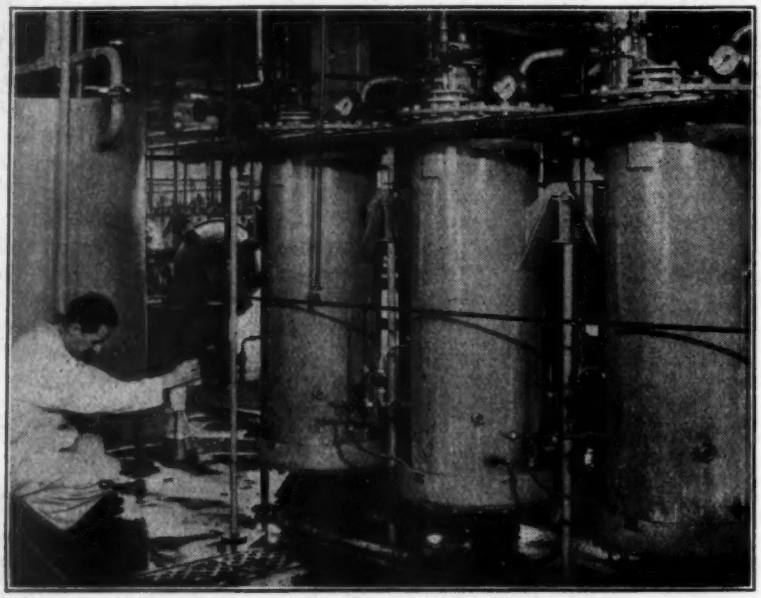

FIG. 1.—Introducing spores into a tank for preliminary fermentation.

FIG. 2.—Main fermentation tanks.

FIG. 3.—Charcoal with adsorbed streptomycin from the filter press being mixed with alcohol.

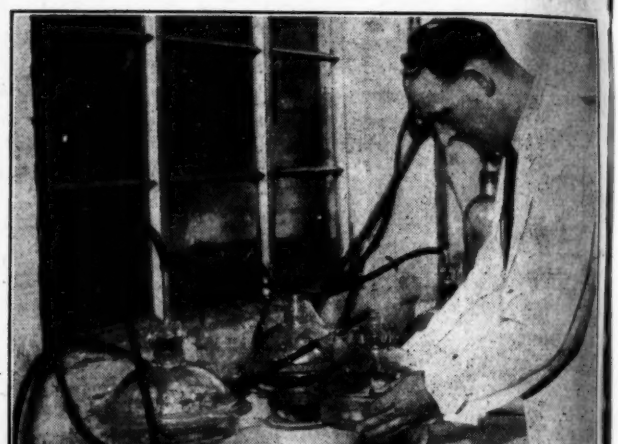

FIG. 4.—Drying off crude streptomycin under a vacuum after precipitation of the alcohol solution.

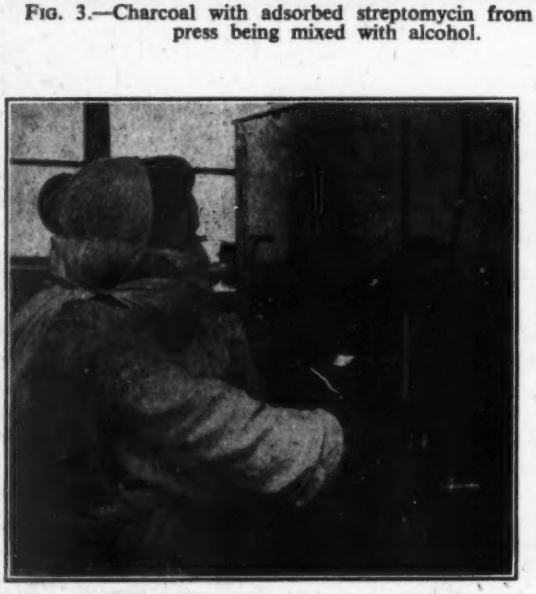

FIG. 5.—Purified solution of streptomycin being transferred to containers after filtration.

FIG. 6.—First stage of bio-assay.

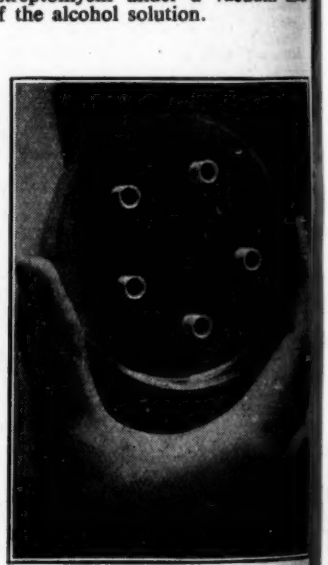

FIG. 7.—Finished test plate (Heatley cup method).

[*Photographs by Topical Press*]

RESETTLEMENT FROM A BASE HOSPITAL

BY

MARGARET J. MAYFIELD

Almoner, Harefield County Hospital, 1940–6

Sir Reginald Watson-Jones has described the Disabled Persons Act as "one of the great social reforms in the history of this country." The two novel features of the Act are the importance attached to the welfare of the individual disabled person and the co-operation demanded from those concerned with his employment.

The circumstances which led to the passing of the Act are worth recalling. The national situation of 1940-1, with its unprecedented demands upon man-power, drew attention to the possibilities of employing the disabled. To further this end the Interim Scheme of 1946 was established, with its provision for special officers of the Ministry of Labour to guide the disabled into employment. During the war years these officials had a relatively simple task, as the demands of industry, especially the lighter varieties, readily absorbed an immense number of disabled persons. With the coming of peace, however, labour conditions are changing, and a much higher degree of skill will be required. To demonstrate this thesis a follow-up of disabled patients was undertaken.

Follow-up of Disabled Persons

The patients that have been selected for this follow-up constitute the first 121 cases referred to the Ministry of Labour on Form R.D.1 by medical officers, and these have been followed up for one year. The actual period of the survey dates from Jan. 1, 1942, to June 30, 1946. It must be noted that these 121 patients are not the only ones who required assistance with employment. For many, slightly adjusted hours, a change of work, or special dietary considerations were all that was necessary, and this could be achieved by a direct approach to employers. Other patients were discharged still unfit and, as there is no out-patient department, were referred to other hospitals. The numbers are small, and form only 1.5% of the 7,920 admissions for that period; but it cannot be stressed too strongly that the few who do require assistance frequently require a great deal, and over a long period, before their resettlement can be said to be satisfactorily completed.

Space does not permit the reproduction of a detailed chart giving the history of each individual patient, but it is possible to draw certain conclusions from the following abbreviated analysis. The patients have been classified according to diagnosis, though this presented some difficulty as many were suffering from more than one complaint. Where this has been the case they have been classified under the most disabling condition.

The findings of the follow-up are divided into two sections (see Table). The first deals with the jobs held at the end of one year's follow-up and the methods by which those jobs were obtained. The second deals with the physical condition at the end of the follow-up. Record was also kept of the number of relapses during the follow-up period, as this is of great significance to employer, patient, and doctor alike.

Disease	No. of Patients	Methods by which Employment Obtained				Physical Condition					
		Government Training	Patients	Ministry of Labour	Other Agencies	Well and Working	Well; Not Working	Unfit; Never Worked	Relapsed	Died	Lost Trace of
Pulmonary Group:											
New growths (adenoma, carcinoma; pneumonectomy)	2	0	1	0	0	1	0	0	0	1	0
Lung abscess	3	0	3	0	0	2	0	0	1	0	0
Bronchiectasis (surgical treatment, 11)	15	0	8	5	0	10	0	1	3	0	1
Bronchitis	3	0	2	1	0	3	0	0	0	0	0
Empyema	3	0	2	0	0	2	0	0	0	1	0
Bronchopneumonia	1	0	1	0	0	1	0	0	0	0	0
Chronic suppurative pneumonitis	1	0	1	0	0	1	0	0	0	0	0
P.T. (1 complicated by bronchiectasis, 1 by spondylitis)	4	0	1	0	3	1	0	0	3	0	0
Chest injuries—G.S.W. with multiple injuries	19	1	10	4	1	14	0	3	2	0	0
Asthma	2	0	0	1	0	0	1	0	0	0	1
Cystic lung	1	0	0	0	0	0	0	0	0	0	1
Emphysema complicated by heart failure	2	0	0	0	1	1	0	0	0	1	0
Cardiac Conditions:											
Constrictive pericarditis—T.B. (partial pericardectomy)	1	0	1	0	0	1	0	0	0	0	0
Mitral stenosis	2	0	0	0	0	0	0	0	0	2	0
Congestive heart failure	1	0	0	0	0	0	0	0	0	1	0
Hypertensive heart failure	2	0	2	0	0	0	0	0	2	0	0
Traumatic Conditions:											
Burns	1	0	0	1	0	0	1	0	0	0	0
Severed tendons: (1) tendo Achillis, (2) flexor tendons of left hand	2	0	2	0	0	2	0	0	0	0	0
G.S.W. thigh with gas gangrene	1	0	1	0	0	1	0	0	0	0	0
Fractures: 1 head injury, 9 limbs (9 G.S.W.)	10	1	5	3	1	9	0	0	0	0	1
Spinal concussion—paraplegia (G.S.W.)	1	0	1	0	0	1	0	0	0	0	0
Dropped foot—nerve injury	1	0	0	1	0	1	0	0	0	0	0
Miscellaneous Conditions:											
Osteomyelitis	2	0	1	1	0	2	0	0	0	0	0
Excision of prepatellar bursa	1	0	0	0	0	0	0	0	0	0	1
Cholecystectomy, post-op. atelectasis, and pleural effusion	1	0	0	0	0	0	0	0	0	0	1
Anaemia	2	1	1	0	0	1	0	0	1	0	0
Diabetes mellitus—1 complicated by bronchiectasis (lobectomy)	2	0	0	1	1	1	0	0	1	0	0
Epilepsy	2	0	2	0	0	1	0	0	1	0	0
Functional illness—1 functional weakness of left arm, 2 migraine	3	0	3	0	0	2	0	0	1	0	0
Hernia	4	0	2	1	1	4	0	0	0	0	0
Peptic ulcer—1 complicated by hypertension	17	0	14	1	1	13	0	0	3	0	1
Rheumatoid arthritis—1 comp. by P.T. and P.U.	5	1	1	1	2	3	0	0	2	0	0
Osteoarthritis	1	0	1	0	0	1	0	0	0	0	0
Nephritis	2	0	1	1	0	2	0	0	0	0	0
Salpingectomy	1	0	0	1	0	1	0	0	0	0	0
Total	121	4	67	23	11	82	2	4	20	6	7

Placing the Disabled in Industry

It will be seen from the table that out of the total number of 121 cases, all of whom were referred to the Ministry of Labour, only 23 (approximately 19%) at the end of the follow-up period were in jobs arranged through the Ministry. By far the greatest number, 67 (approximately 55%), had placed themselves, while for 11 (9%) the arrangements had been made by other agencies. From their letters the majority appear to have reported to their exchanges, but on not being offered suitable work made their own arrangements—a comparatively simple matter owing to the greater opportunities for absorption into industry during the war years. Out of the 82 who were well and working at the end of the follow-up, only 19 were in jobs arranged by the Ministry of Labour, 56 had placed themselves, other agencies had placed 5, and 2 were still training.

A brief study of the relapse rates is also revealing. Out of the total number of relapsed cases (30) during the follow-up period 8, including 3 of the trainees, occurred among those placed by the Ministry of Labour, and 16 among those who had had made their own arrangements; 5 of those placed by other agencies relapsed, and the remaining case, suffering from peptic ulcer, relapsed soon after discharge from hospital, and attributed this to the worry and uncertainty of finding suitable work.

Further investigation into the progress of patients who undertook Government trainings tells the same story. In addition to the 4 who were training at the end of the follow-up period 7 others had training arrangements made for them, making a total of 11 for the survey. Only 4 (chest injuries 2, bronchiectasis 2) completed their training, and these were placed satisfactorily by the Ministry of Labour. The remaining 3 abandoned their training and made their own arrangements. Of those who had received Government training 4 relapsed during the follow-up period. Of this number a girl who had had a lobectomy for bronchiectasis had to give up her clerical training as she had a recurrence of sputum, thus making it difficult for her to work in an office in close proximity to others; another, an ex-Service man suffering from rheumatoid arthritis who had undertaken a training in tailoring, had relapsed by the end of the year, as also had another suffering from pernicious anaemia, with subacute degeneration of the spinal cord, who had been recommended for welding. The other who relapsed suffered from head injuries received at El Alamein; he attempted courses in carpentry and typewriter mechanic's work, both unsuccessfully, and finally made his own arrangements to train with a local boot- and shoe-repairing firm, the Ministry of Labour making an allowance.

Difficulties Met With

It must be stated in fairness to all concerned that, owing to various causes, the absorption of disabled persons into industry is no easy task. To cite one difficulty which arises in the Home Counties: the congestion of factories and offices in the central London area necessitates many persons living a long distance from their work, thus adding considerably to the fatigue factor. In some trades it is the organization itself which makes it impossible for the conditions of work to be adjusted to the needs of disabled persons. It is significant that among the 17 patients treated for peptic ulcers 16 were manual workers—e.g., lorry-drivers, builders' labourers, etc.—so that it was impossible for them to have special dietary consideration, and long-distance travelling prevented their returning home for a properly cooked midday meal. Seven out of the total number of relapses were gastric patients. It has been argued that these patients should change their jobs; but many, particularly among the older men, find it hard to make the necessary mental effort, or feel they cannot face the economic uncertainties of an unfamiliar job. These difficulties cannot be solved by the Ministry of Labour alone, but much more could be done by them with properly trained personnel, less cumbersome machinery, and a more thorough follow-up. A much higher degree of co-operation between hospitals, the Ministry of Labour, and industry is also required. The subsequent history of Mr. S. (aged 50) illustrates these points.

This man suffered from pernicious anaemia with subacute degeneration of the spinal cord, and could walk only with the aid of sticks. The Ministry of Labour undertook to find training for him successively in welding, in boot- and shoe-repairing, and in clerical work, all of which for various reasons were found to be impracticable, resulting in months of delay, prolonged stay in hospital, and bitter disappointment to the patient. It was finally suggested by the hospital authorities that the best form of resettlement might be a rug-making business at home—work he had been trained to do in the Occupational Therapy Department. The Ministry of Labour agreed to this, but it was left to the hospital social service department to make the arrangements with the Board of Trade and the retailers for the supply of wool, to raise the capital, and find the market for the rugs.

This instance betrays a deplorable lack of understanding of the needs of a disabled person and a superficial handling of the whole case. Far too often it happens that the importance of the social background is ignored and that the patient is regarded more as a means of production than as a human being.

Another difficulty that arises from this lack of understanding is with those who for economic reasons are forced to take an unsuitable job rather than face an indefinite period off work. The official mind does not always appreciate the difficulty of managing on the somewhat meagre unemployment benefit.

Some might say that the disability of Mr. S. and of several others mentioned in this survey was severe, and that possibly those who were not able to work or who died within the year should not have been referred to the Ministry of Labour; but it can be argued, on the other hand, that work is of high psychological value to many persons who, if told they could never work again, would deteriorate mentally. The task of providing work for this category of severely disabled persons has now been taken over by the Disabled Persons Corporation, provided for under the 1944 Act. They have power to create sheltered workshops and to subsidize existing ones; but, although this would appear on the surface to be the ideal solution for many cases, a word must be said concerning residential workshops. While appreciating that much good work is done in them, and that they fulfil a need for a certain type of patient, particularly the young chronic tuberculous subject who can never adjust himself to normal surroundings, it cannot be said that they provide the best solution for disabled persons in general. The great majority do not wish to uproot themselves and leave their homes and friends, and a happier answer to the problem would be more facilities for work in sheltered workshops locally or in their own homes. Ideally, these workshops should provide for part-time work and a graduated return to employment as well as the right type of work under good conditions. From the industrial aspect it would not be an economic proposition to employ many such patients and pay a living wage, but one hopes to see an extension of the principle of the supplementation of wages, at present payable only to certain types of the tuberculous.

The second weakness observed in this survey—namely, the cumbersome machinery of the Ministry of Labour—is clearly shown in the attempts to arrange trainings. Eight weeks elapsed between the recommending of the boot- and shoe-repairing training for Mr. S. by the D.R.O. and the date when he was informed that it was impracticable. It took all this time to ascertain that there were no facilities for training either in a centre or with a local employer, and no adequate supplies of leather to make it an economic proposition. Mr. D., suffering from spondylitis and tuberculosis, had a similar experience. He waited five weeks before being told there was no clerical training available.

It is appreciated that the pooling of information regarding local labour conditions presents difficulties, particularly when the situation is complicated further by an uncertain prognosis and the patient's capacity for employment cannot be accurately assessed; but much more could be done, and must be done, if the value of the hospital interviews is not to be lost. This is rendered more urgent by the coming days of regionalization.

The need for a more thorough follow-up has already been illustrated by the foregoing examples. Without someone behind to advise and assist, Mr. S. with his lack of education would never have struggled through the ramifications of the Board of Trade to final independence. It could be argued that had he applied to the Ministry of Labour he would have received the necessary assistance; but anyone acquainted with the psychology of sick persons knows that many, for reasons of pride or from timidity of nature, do not take the initiative in asking for assistance. It is realized that the Ministry of Labour has not the same facilities for follow-up as a department of health; but if the responsibility of employing disabled persons is to be theirs they must devise some method of maintaining contact with the patient, especially in chronic conditions prone to relapse. For other reasons, too, such as research, a comprehensive follow-up would be valuable.

No survey of resettlement would be complete without mention of the difficulties caused by compensation and pensions. Without doubt these can be a stumbling-block in a patient's rehabilitation, as he fears that by taking up employment his compensation will be less, and there is the additional risk that after a prolonged period of enforced idleness he will become unemployable. Evidence indicates, however, that this is less of a burden that it was, as out of the 121 cases in this survey only

one who suffered from asthma and remained well but was not working throughout the year can be said to come within this category.

A Brighter Future

Those of us who are concerned with the employment of disabled persons know the magnitude of the task, but events during the past few decades, culminating in the passing of the Disabled Persons (Employment) Act, suggest an infinitely brighter future. Improvements in employment conditions in general can only be achieved slowly, but already a large number of firms show a benevolent interest in their employees, which leads one to hope that in time there will be a more generally enlightened attitude towards the needs of the disabled. A solution to all the difficulties is provided by the Disabled Persons (Employment) Act, and the key to its successful implementation lies in the recognition of the importance of the individual. As no two persons are endowed with the same qualities of character or talents, so any scheme which attempts to rehabilitate *en masse* is doomed to failure. The patient himself must make the final decision, but much of the responsibility lies with those who advise him, and there must be closer co-operation between medicine and industry. The passing of the Disabled Persons (Employment) Act, a direct consequence of the war, will manifest once again the truth of Shakespeare's words that

> "There is some soul of goodness in things evil,
> Would men observingly distil it out."

HOSPITAL RECORDS*

The course-conference for hospital records officers held at Oxford in September provided, so far as is known, the first opportunity for persons engaged or interested in hospital medical record-keeping in Great Britain to meet and exchange information and opinions on matters relating to hospital medical records.

Although originally planned for "hospital records officers or their equivalents" (i.e., lay persons who, though not designated records officers, actually carried out duties connected with the production and care of medical records), the course-conference members included two hospital medical superintendents, a surgeon, three bio-statisticians, several hospital administrators and assistant administrators, and others not solely (or even directly) engaged in the work of a hospital records department. A few of those attending were not in hospital service at all, but were concerned either with medical records in the wider sense or with records in some medical organization other than a hospital. Among those wholly or partially employed on hospital medical records there was revealed a wide range of duties and functions, some controlling records from registration to final disposal, others being in charge of one aspect only of record-keeping. The various interpretations placed on the title "records officer" were of interest in themselves.

The total number of registrants was 100, and 12 applications had to be declined owing to shortage of accommodation. Seventy hospitals were invited by letter in May, 1947, to send representatives. Of these, 63 availed themselves of the invitation. The remainder of the hospitals represented applied for places on their own initiative. This was naturally most encouraging to the organizers.

Papers were given by some 30 persons, and seven commercial firms provided material for demonstrations. The paper contributed by Miss Elsie Royle, of the Christie Hospital, Manchester, was outstanding. Dealing with the duties and responsibilities of records officers, Miss Royle's paper called for a high standard of work from her colleagues. "The qualifications of a records officer," Miss Royle said, "include all the virtues of tact and diplomacy, initiative and energy, good humour and patience, a progressive outlook, and the ability to organize and to teach. To these personal attributes a knowledge of medical terminology, anatomy and physiology, and an appreciation of statistical theory should be added, and last, and probably most important, experience in hospital and medical ethics." Miss Royle's main theme was that the medical profession needs trained help in the analysis and presentation of the results of its hospital work, and that if hospitals are to have good medical records and to use them intelligently someone must organize their preparation and analysis. This organization is a task for which clinicians have insufficient time. Hospitals should therefore entrust it to a trained person, and all the work connected with records should be concentrated in the hands of this specialized officer.

The same note was struck by Mr. H. Cotton, of the Nuffield Bureau of Health and Sickness Records, Oxford, who described the purposes and uses of medical records in hospitals. In the course of his opening paper Mr. Cotton observed:

> "The main need to-day is for a broadly uniform system of medical record-keeping in British hospitals. If record-keeping is indeed a scientific task, the laws of the science should be discovered and generally applied. A uniform system would not mean regimentation. It would mean that certain well-defined principles would be followed by all hospitals, with adjustments best suited to individual requirements.
>
> "It follows that if medical record-keeping is to have a broad plan, and if the best techniques are to be adopted by all concerned, there is a need for persons versed in the plan and skilled in the techniques. This means that the production and care of medical records should not be allotted haphazard to persons with no special aptitude, training, or experience. Trained medical records officers are essential members of modern hospital staffs."

Prof. J. A. Ryle addressed the course-conference, and, using examples from his own career as a physician, indicated how the absence of records, or the inability to use them, could be a very real handicap to a clinician, whether a junior or senior member of the hospital staff, a consultant, or one holding a public appointment. He emphasized the advantage of teamwork, and stressed that to-day the almoner and the records officer were just as much a part of the medical man's team as the pathologist, the physiotherapist, and others. In stressing the importance of follow-up (which should not be limited to a few special diseases) he pointed out how utterly dependent on accurate and readily accessible records was a successful follow-up scheme.

Dr. P. L. McKinlay, medical statistician to the Department of Health for Scotland, contributed a paper of special interest, dealing with records as potential data for statistics. Striking a note of caution, Dr. McKinlay pointed out that hospital records will provide information only on intercurrent morbidity, and we must not overestimate their capacity even in this respect. For instance, one result of certain modern drug therapy is that many diseases formerly treated in hospital are now being treated at home. Also, hospitals select their cases to some extent. The sickness of the community as a whole, therefore, is not reflected in hospital figures.

Other factors which have to be studied in assessing public health are predisposing factors, prognosis, and criteria of response to therapy. Hospital records can contribute some information regarding the first and second questions. Prognosis is more easily determined (from the community point of view) on data contributed by general practitioners throughout the area.

The hospital administrator's view of the records problem was put by Mr. Stephen C. Merivale, house governor of the Bristol Royal Hospital, who said that the position of the records officer was clearly that of a departmental head, responsible to a Records Committee, comprised almost wholly of medical staff, for all matters affecting records generally; and to the house governor for administrative matters affecting the hospital as a whole. The records officer should be responsible for the appointments system, the registration of all patients, the journeys of notes throughout the hospital, the allocation of typists and stenographers engaged on typing clinical notes and letters to outside practitioners, and the more generally recognized duties of filing, indexing, and analysing medical records. Where there is a medical library it should be under the records officer. If the best use was to be made of a hospital's beds a central waiting list should be compiled by the records officer, who, on the direction of the various clinicians, would initiate the admission of patients to hospital.

Other papers were given by Prof. Sir Hugh Cairns (Oxford), Mr. B. Benjamin (L.C.C. Health Department, statistician), Mr. Edwin F. Patterson (King's College Library, Newcastle-upon-Tyne), and Dr. A. H. T. Robb-Smith (Oxford).

*An account of a Course-Conference for Hospital Records Officers, held at Oxford in September, 1947, under the auspices of the Nuffield Bureau of Health and Sickness Records.

The subjects dealt with in a syllabus covering eight days included medical nomenclatures and classifications, unit records, diagnostic indices, appointments systems for patients, medical terminology, microfilming, medical and surgical dictation, and others of a more detailed interest. The course-conference was not invited to adopt any formal resolutions, and did not do so. Nevertheless, it is possible to summarize very briefly what appeared to be the views of those attending on certain points of principle. The following expressions of opinion appeared to command general assent :

1. In all hospitals, adequate documentation of medical service should be the rule.
2. In the larger hospitals at least, responsibility for the production and care of medical records should be assigned to a person (not necessarily medically qualified) skilled in this work. [N.B.—"Production" as here employed means the preparation (in part) and assembly of medical records, but not the entry of any clinical or technical data.]
3. The person to whom this work is assigned should be designated "Medical Records Officer" and should have the status of a departmental head.
4. The medical records officer should be qualified by training and practical experience for the work undertaken; the subjects studied should include anatomy, physiology, medical terminology, organization techniques, filing and indexing methods, photographic and microfilming methods, coding and classification, interdepartmental relations, interview technique, simple statistical methods, and, in some cases, punched-card methods.
5. There is a need for training facilities. One way of meeting this need initially would be by the establishment of training schools for medical records officers in one London hospital and one provincial hospital; the hospitals chosen should first be equipped with records departments of the most efficient and up-to-date kind.
6. A basically uniform system of medical record-keeping should be devised not to prescribe "pro-formas" for hospital doctors but to standardize methods of registration and techniques for the preparation, storage, and indexing of medical records.

The Nuffield Provincial Hospitals Trust sponsored the course-conference.

(A *Digest of the Proceedings of the Course-Conference* has been prepared, and copies may be obtained, price 2s. 6d. each, from Mr. H. Cotton, 10, Parks Road, Oxford.)

SPECIAL COMMITTEE ON NUTRITION

The Special Committee on Nutrition set up recently by the British Medical Association held its first meeting at B.M.A. House, Tavistock Square, London, on Dec. 1. The following are the members of the Committee:

Lord Horder, adviser to the Ministry of Food; president of the Food Education Society.

Dr. G. F. Buchan, until recently medical officer of health, Willesden; lecturer in public health, Guy's Hospital and St. Mary's Hospital Medical Schools.

Miss Harriette Chick, C.B.E., D.Sc., a member of the staff of the Nutrition Section of the Lister Institute of Preventive Medicine.

Prof. S. J. Cowell, professor of dietetics, University of London; a member of the B.M.A. Committee on Nutrition, 1933.

Prof. G. P. Crowden, O.B.E., D.Sc., professor of applied physiology, University of London; secretary, Nutrition Committee, Medical Research Council, 1928–34; adviser to the B.M.A. Committee on Nutrition, 1933.

Sir Jack Drummond, F.R.S., D.Sc., scientific adviser to the Ministry of Food, 1939–46; director of research to Boots Pure Drug Co. Ltd. since 1946; adviser on Nutrition Control Commission for Germany and Austria (British elements), 1945–6.

Dr. R. G. Gordon, a member of Council, B.M.A.; chairman of the Science Committee, B.M.A.

Dr. Jean Mackintosh, senior assistant medical officer of health for maternity and child welfare, Birmingham; member of the Nutrition Society.

Prof. V. H. Mottram, formerly professor of physiology, University of London; a member of the B.M.A. Committee on Nutrition, 1933.

Dr. R. Murray Scott, general practitioner, Leeds.

Dr. R. E. Smith, medical officer, Rugby School.

Dr. H. M. Sinclair, director of Oxford Nutrition Survey.

Dr. Donald Stewart, member of the Industrial Health Research Board, Medical Research Council.

Dr. J. G. Thwaites, general practitioner, Brighton; member of Council, B.M.A.

Ex-officio members of the Committee are:

Sir Hugh Lett, President, B.M.A.

Dr. J. B. Miller, Chairman of the Representative Body, B.M.A.

Dr. H. Guy Dain, Chairman of Council, B.M.A.

Dr. J. W. Bone, Treasurer, B.M.A.

The Committee has power to co-opt additional members whose names will be published later.

The Ministry of Health has nominated Dr. H. E. Magee, Deputy Senior Medical Officer in the Foods Division of the Ministry, to attend the Committee as observer.

The terms of reference of the Committee are: "To consider and report on the problems of nutrition in this country, including present nutritional standards."

On Dec. 1 Lord Horder was elected Chairman of the Committee and Dr. R. G. Gordon Vice-Chairman, and in Lord Horder's absence Dr. Gordon presided at this preliminary meeting. It was reported that four of those invited had found it impossible to accept membership, and the Committee discussed other possible nominations and also the desirability of obtaining by co-option the representation of certain special points of view. It was decided to endeavour to enlist as members of the Committee a statistician and a representative housewife.

Sir Jack Drummond suggested the appointment of three subcommittees. The first of these would be charged with the ascertainment of nutritional requirements, examining critically the existing knowledge and information concerning basic nutritional requirements of various sections of the population. The second would undertake a survey of family consumption, and Sir Jack hoped that with the co-operation of the Ministry of Food some access might be given to the immense amount of data accumulated by that Ministry during the war but never classified or published. The third would be an expert clinical subcommittee whose task would be to examine data concerning the state of health of the people in the war and post-war periods, studying not only clearly attested documents, such as the Medical Research Council's reports, but also in a critical way the mass of less clearly substantiated statements about the effect of war and post-war conditions of diet upon health. The Committee agreed to the setting up of these three subcommittees, and added a fourth, which would concern itself with practical dietetics, and would also consider questions of morale and psychology in relation to diet.

Five members of the Committee were appointed to each of these subcommittees, and the need for getting out a report with reasonable speed was stressed. It was considered that the first and second subcommittees, dealing with nutritional requirements and family consumption respectively, might find it desirable, in part, to work together.

The Committee as a whole will not meet again until reports from the subcommittees are available. Various documents were laid before the Committee, including the report of the former Special Committee of the Association on Nutrition, published in 1933. Two members of the present Committee—Dr. G. F. Buchan and Prof. V. H. Mottram—were also members of the earlier Committee, and another member of the present Committee—Prof. G. P. Crowden—assisted in its deliberations.

"Is chastity outmoded?" is a question asked in the November number of *Marriage Guidance*, the bulletin of the National Marriage Guidance Council, 78, Duke Street, London, W.1. The conclusion that it is not is supported by quotations from various authorities. The late Prof. Ernest Groves said, "Pre-marriage experience is no advantage but frequently instead the chief cause of marital maladjustment." The opinion of Prof. Hornell Hart is also quoted: "The fear of some young people lest inexperience in sexual intercourse may leave them unprepared for marriage is groundless. . . . Pre-marital sex relations are likely to damage subsequent affection and to obscure the psychological and social aspects of the search for well-matched mates."

Reports of Societies

RADIATION IN THE TREATMENT OF MALIGNANT TUMOURS

SWEDISH EXPERIENCE

At a meeting of the Section of Radiology of the Royal Society of Medicine on Nov. 21, with Dr. J. S. FULTON in the chair, Dr. ELIS BERVEN, of Stockholm, gave an account of the methods and results of radiation treatment of malignant tumours in Radiumhemmet.

Dr. Berven said that one of the principles followed was that radiation through the tissues surrounding the tumour must not be of such intensity as to damage the resistance of the body, and another was that treatment should be given in the shortest possible time. He described the *x*-ray and other apparatus employed, and said that 3,225 mg. of radium was distributed in 97 tubes and 14 applicators. Only gamma rays were used, and no radium emanation or radon was employed. Malignant melanoma, which was radio-resistant, was treated by excision under general anaesthesia, followed by prophylactic *x*-ray or radium treatment in the region. In carcinoma of the lip radium applicators had been used at first, and then implantation of radium needles, but now most cases were treated by *x* rays and 69% of patients were symptom-free after five years. In cases of carcinoma of the mouth radium applicators and implanted radium needles had given way to a combined method, beginning with teleradium through different ports of entry so as to give a cross-fire effect, supplemented later by *x*-ray treatment. Usually a small tumour remnant was left, and this was electrocoagulated under general anaesthesia. Cases of cancer of the oral cavity treated in this way in the period 1931–41 numbered 688, of which 196, or 28.5%, were symptom-free at the end of five years. He next spoke of the Plummer-Vinson syndrome. The atrophic state of the mucous membrane of the mouth seemed to predispose these patients to tumours of a malignant type. *X*-ray treatment was applied in four fields, two on each side, each field being given a total of from 2,000 to 3,000 r in daily doses of 400 r, and later teleradium was applied. For tumours of the oesophagus only palliative treatment could be undertaken.

In carcinoma of the antrum *x*-ray treatment was first given, covering two anterior and two lateral fields, with a total dose to each field of about 3,000 r. When the reaction had passed off, coagulation was performed not only in the antrum but in the ethmoidal region, and four radium tubes were applied to the coagulated area. Cancer of the maxilla was treated in the same way, and about 39% of cases remained symptom-free after five years. In cases of cancer of the nasopharynx the proportion of patients remaining symptom-free after five years was only 22.5%, but in sarcoma of the same region it was 44%. For infiltrating intrinsic cancer of the larynx laryngectomy was employed with post-operative radiation. The number of cases so treated in 1940–4 was 31, and freedom from symptoms for three years was claimed in 61.3% of the cases. In carcinoma of the lung or bronchus the treatment given had been only palliative.

Since 1921 cases of carcinoma of the breast had been treated by pre-operative irradiation of two fields (unless the breast was small, when four fields were employed, two on the breast and two in the axilla), and as soon as possible after operation a first course of radiation was given, two months later a second course, and after a similar interval a third. Post-operative treatment was applied over one large anterior field and one posterior field. During the period 1921–35 607 cases of cancer of the breast had received this sequence of treatment, and the proportion symptom-free after five years was 41.2% and the proportion of survivors 44.3%. During the period 1936–41, when the technique was improved and *x*-ray castration adopted in all cases, 517 women had been treated, and 44.1% were free from symptoms at the end of five years and the survival rate at the end of five years was 52.6%. In cases of cancer of the breast with periglandular involvement treated by pre- and post-operative radiation, 32% were symptom-free after five years. During the period 1935–41 40 cases of carcinoma of the bladder were treated, and 12, or 30%, were free from signs and symptoms after five years. From 1929–40 167 cases of carcinoma of the prostate were treated; 107 of these were inoperable, and among these the survival rate after three years was 16%, and after five years 5%. In the operable cases the survival rate after three years was 38% and after five years 26%.

For cancer of the cervix the method followed since 1932 had been Heyman's, or the Stockholm technique. Radiation treatment had been given in two sessions; the total intrauterine radium application was 2,000 to 2,600 mg./hr., and the application in the vagina was about 4,000 mg./hr. In cases of carcinoma of the body of the uterus the method of packing the uterine cavity with small radium containers had been followed. Radium was applied in two sessions at an interval of two weeks. During the years 1934–41 459 cases had been treated in this manner and the number symptom-free after five years was 284, or 61.9%.

Dr. N. S. FINZI said that his impression was that better results in cases of cancer of the rectum were being obtained now with the million-volt apparatus than had been the case with the earlier relatively small power installations. The same was true of cancer of the antrum.

Prof. B. W. WINDEYER, expressing thanks to the lecturer, spoke of the help which the Stockholm institute extended to visiting radiologists from this country. Dr. BERVEN said that in Stockholm the closest co-operation existed between the radiologists and their surgical and specialist colleagues. They all met together on two days a week and usually had some twenty or thirty patients to discuss.

BRITISH ORTHOPAEDIC ASSOCIATION

ANNUAL MEETING

The annual meeting of the British Orthopaedic Association was held at Manchester on Oct. 24 and 25 under the presidency of Mr. GEORGE PERKINS.

Recurrent Dislocation of the Shoulder

Mr. H. OSMOND CLARKE described in detail a capsulorrhaphy for recurrent dislocation of the shoulder, which he called the "Putti-Platt" operation. This consisted in a wide approach to the front of the joint with division of the coracoid, subscapularis tendon, and capsule. The distal cut edge of the subscapularis tendon was sewn to the neighbourhood of the anterior lip of the glenoid, and the proximal portion of the tendon was made to overlap the suture line. The coracoid was repaired and the wound closed.

Mr. J. C. ADAMS had investigated the results, after two years or more, of 114 out of 159 operations for recurrent dislocation of the shoulder undertaken in Royal Air Force hospitals from 1940–5. After 59 Nicola operations there had been 21 recurrences and 2 after 37 Putti-Platt operations. The intervals before recurrence varied from four months to five years, averaging 22 months. Among 79 shoulders fully explored, the glenoid labrum was found detached in 69 and soundly attached in 10. Adequate radiography of 68 patients revealed a postero-medial defect in the humeral head in 56; an antero-posterior view with limb rotated inwards through 60–70 degrees was advised. The range of movement was almost full after Nicola's operation; lateral rotation was frequently diminished after Bankart's operation, and rather more so after the capsulorrhaphy. The relatively free range after Nicola's operation was perhaps a factor in the recurrent cases, which did not always show atrophy of the reattached tendon. The good results of the other operations were attributed to the fibrous tissue formed in the front of the capsule which limited lateral rotation.

Mr. A. L. EYRE-BROOK gave a detailed analysis of 20 consecutive cases operated upon by the antero-medial approach. The lesions found were: anterior detachment of the glenoid labrum (Bankart's lesion) alone in 6 cases; a postero-medial defect in the humeral head alone in 3 cases; a combination of these two defects in 10 cases; and detachment of the subscapularis from the lesser tuberosity in one case. The bony defect was best revealed pre-operatively by radiography from above with the film in the axilla and the arm laterally rotated through 70 degrees. Radiography often disclosed also a bony subglenoid outgrowth in cases of Bankart's lesion. In cases

showing this lesion at operation, a modified Bankart's operation was performed. In cases not showing this but with a defect in the humeral head, multiple osteotomy of the coracoid had been performed (2 cases) and, more recently, an iliac graft had been applied to the front of the scapular neck. After operation the arm was bandaged to the side for four to six weeks. Work was resumed after a further six weeks. No recurrence had been found in 12 cases followed up for periods of six months to four years.

Mr. A. B. PAIN had examined the records of 43 operations for recurrent dislocation of the shoulder in 33 patients operated on in the Leeds area during the preceding fifteen years. One patient had bilateral operations, 7 others had two operations, and 3 had as many as three operations each; 6 of the patients were epileptic. Among 28 patients traced, seven different types of operation had been performed as follows (recurrences in parentheses): Clairmont 1 (1); Henderson 13 (9); subscapularis tenotomy 3 (1); Nicola 12 (4); Bankart's operation 2 (1); capsular plication 1 (0); and bone block 4 (0). Recurrence might happen at any time up to seven years after operation, but in 12 out of 18 instances it happened within a year and within three weeks in 6 of these cases.

Other Papers

Prof. JACQUES LEVEUF, in a paper on the treatment of acute osteomyelitis, expressed the view that in haematogenous osteomyelitis the first bony lodgment of the staphylococcus was not usually in the metaphysis but in the neighbourhood of the entry of the perforating artery, where a cortical abscess formed, with usually a very small lamellar sequestrum. Spread was mainly towards the surface, but also along the artery and its branches, producing further cortical lesions and occasionally medullary ones. Prof. Leveuf, who has practised plaster-of-Paris immobilization in this disease for twenty years, condemns bone operations in the acute stage and especially metaphyseal drainage. The soft-tissue abscess should be drained between the fifteenth and twentieth days; formerly the wound was left widely open, but now, with the aid of penicillin, it was closed forthwith. He produced histological and radiological evidence in support of his pathological contention, which led to a lively discussion.

Prof. S. L. BAKER, in a paper on the histology of callus, stated that the first sign of bone appeared within the first week in an area of gelatinous oedema in the mass of young connective tissue which invaded the haematoma about a fracture. This bone was of a type called woven bone because of the irregular arrangement of the fibres which, with a connecting substance, formed the osteoid matrix, as distinct from lamellar bone in which the fibres had a parallel arrangement. Whereas woven bone could be laid down rapidly in connective tissue, lamellar bone formed slowly and could be laid down only on a surface. Woven bone formed about blood vessels and so the orientation of its trabeculae was determined by the vascular arrangement, whereas that of the trabeculae of lamellar bone was determined by the stresses to which it was submitted. Woven bone was usually replaced slowly by lamellar bone. The formation of cartilage in callus appeared to depend largely on movement. Callus was no respecter of the periosteum, often passing well outside it. In certain rare instances, especially in fragilitas ossium, there was a prodigious formation of callus which might be taken for sarcoma.

Mr. ROLAND BARNES read a paper on paraplegia in cervical column injuries, based on 22 cases. Mr. D. LL. GRIFFITHS discussed the management of acute ischaemia in an injured limb. Mr. JOHN CHARNLEY gave a short discourse, illustrated by ingenious models, on some of the basic mechanical principles used in the reduction and splinting of fractures. Mr. C. H. CULLEN read a paper on causalgia, based on 24 cases seen personally during the war.

Mr. T. J. FAIRBANK, discussing fracture-subluxation of the shoulder, said that among 115 cases of fracture about the shoulder he had found 12 with radiologically demonstrable downward subluxation of the humeral head—in 11 of them as a complication of fracture of the neck of the bone. Clinically a groove could be felt between the acromion and the humeral head which could usually be abolished by lifting the humerus actively or passively or by recumbency. In the normal subject little downward subluxation occurred except during anaesthesia, and muscle tone appears to be the main factor preventing it. At follow-up, a year after injury, the subluxation had sometimes disappeared, but it occasionally persisted for three years or more. Of these patients 9 had been treated for their fractures with collar-and-cuff slings and 3 with abduction frames. It was suggested that, in the treatment of fracture of the humeral neck, a triangular sling was preferable to a collar-and-cuff, and that if abduction was necessary a plaster-of-Paris spica should be used.

In considering the treatment of the unreduced pathological dislocation of the hip from septic arthritis in infancy, Mr. A. F. BRYSON excluded patients aged more than twelve months at the time of the acute illness. In most it occurred in the first nine months. His 16 cases were all unilateral, and 15 were operated upon. One underwent an unsuccessful Colonna's arthroplasty. Of 3 treated by osteotomy, one secured stability, but the other two continued to show progressive shortening, flexion, and adduction. Arthrodesis was much the best procedure; in 11 patients so treated bony fusion occurred within a few months in 7 of them and after subsequent osteotomy in another. Operation should be delayed till the age of 12 or 13 years because of the great amount of activity possible till then and because earlier bony fusion was not only difficult to obtain but did not fully prevent subsequent flexion and abduction deformity.

Miss E. L. WILLIS summarized the end-results in fractures of the femoral neck in 192 cases treated in the University Department of Orthopaedics at the Manchester Royal Infirmary, with a death rate of 8% within three months of injury. Fifty out of 113 patients with subcapital and transcervical fracture were sent two or more years after injury: 22 had good results and 15 poor; 13 showed avascular necrosis of the femoral head. Of 74 fractures treated by Smith-Petersen nailing, 41 showed radiological union. Of 79 basal and pertrochanteric fractures, 51 were treated by well-leg traction, with union in 43. There were 23 good clinical results among 28 patients examined more than a year after injury.

Clinical cases were shown at the Manchester Royal Infirmary by Prof. HARRY PLATT, Mr. HENRY POSTON, Mr. D. LL. GRIFFITHS, Mr. JOHN CHARNLEY, Miss E. L. WILLIS, and Mr. T. J. FAIRBANK; and also at the Salford Royal Hospital by Mr. W. SAYLE CREER, Mr. S. M. MILNER, Mr. J. L. MANGAN, and Mr. CLAUDE BRUN.

THE PROBLEM OF DELINQUENCY

COMMUNITY CONTROL OF THE INDIVIDUAL

The annual general meeting of the Institute for the Scientific Treatment of Delinquency, the first such meeting since 1940, was held at the Institute's new premises, 8, Bourdon Street, W.1, an eleven-roomed building with a lecture hall. Lord HORDER, vice-president of the Institute, presided.

Mr. WALTER ELLIOT, M.P., described delinquency as a deviation from the average—not from the normal, because it was not known what the normal was or ought to be. He felt that scientific investigators must often have qualms about the way in which the community was extending its sway over the individual and requiring conformity to a pattern. The House of Commons was continually manufacturing new offences. Scarcely a day passed without some fresh opportunity for delinquency being discovered. Examples were to be found in the National Assistance Bill. It was recommended to the House by Mr. Aneurin Bevan, and would shortly be the law of the land, that certain persons might, on the certificate of the medical officer of health, be removed from their homes to a hospital or some other place of detention, and any person who disobeyed or obstructed the execution of such an order would be guilty of an offence and liable to a fine not exceeding £10. Thus, without any scientific investigation, a new set of delinquencies would be instituted. Most of the prophets, nearly all the noble army of martyrs, and certainly every one of the hermits would have been subject to a fine not exceeding £10. Further, anybody living under conditions of vagrancy—he had in mind St. Francis of Assisi—might be liable to very drastic penalties.

The Institute, Mr. Elliot took it, was interested in the effect of community action upon individuals. One great mass experiment of this kind was wartime evacuation, and here a curious thing happened. He had some facts relating to the condition of 200 children who were transferred from a crowded industrial city of Lancashire to a country camp where they lived for two or three years in ideal surroundings and had every advantage in the way of diet and medical supervision that could be desired. Yet their increase in growth did not even equal that of a comparable group of youngsters who remained in the industrial environment. He could think of no better explanation than that the camp children had been separated from home and family life.

Another curious fact was the sudden cessation at the outbreak of war of the customary biennial explosion of measles. For years there had been between 1,000 and 1,500 deaths from measles every second year, the intervening year showing only about one-tenth the number, but this rhythm was decisively broken in 1939–40, apparently as a result of the closing of the schools, and now that the schools were again fully at work the rhythm was re-establishing itself. Another example of wartime waywardness was the suicide rate. Before the war the number of suicides was astonishingly large. The number of men committing suicide in 1938 and in 1939 was about 3,500, but during the years 1942 to 1945 it was always below 2,500; in 1946 it rose to 2,800, and this year was again rising. It might be said that the conditions of war offered men an alternative to suicide, but the same trend was found among women. Women suicides numbered about 1,700 in 1938 and 1939, but from 1941 to 1944 they were round about 1,300, and they rose to 1,400 in 1945, to 1,600 in 1946, and this year the figure was still increasing. It seemed as though when settled conditions prevailed people became bored and were more likely to turn their thoughts to suicide. Apparently "battle, murder, and sudden death" represented the desires of the human race, and a fundamental problem was what equivalent was to be offered for these conditions.

Mr. Elliot went on to say that the difficulty of our society was the pressure of enormous State mechanisms continually expanding and aiming to produce more and more settled and uniform conditions, while settled conditions were the things against which human nature rebelled. What was the remedy? Some of the figures he had quoted showed that at any rate the institution of the family was a very important one. One of the wisest epigrams ever coined in relation to the treatment of delinquency was Shaw's remark that "one should never strike a child except in anger." But it was very difficult for the State official to turn anger on and off, whereas the child's mother, or still more his father, could administer correction in such a way as not to harm the child and yet to vindicate the law of the normal—or rather that of the average—in the family.

He thought that a great humility was required in the approach to such problems, which were largely psychological. In his view the human race was being over-governed. How the evils of this were to be avoided he did not know, but it was to investigators such as those associated with the Institute that Parliament might look for guidance.

Future Prospects

Dr. DENIS CARROLL, director of the Psychopathic Clinic, followed with a brief statement on future prospects. There was a popular notion, he said, that the National Health Service Act and the Criminal Justice Bill would solve all their problems. Yet the situation was difficult. Under the Criminal Justice Bill many of the arrangements with magistrates which they in the Institute had brought about would receive legal sanction. But it was not known at present whether the clinic would or would not be transferred to the National Health Service. It was possible that the clinic would pass under the management of the appropriate regional hospital board and management committee, and likely, though not a foregone conclusion, that it would have representation on the managing authority. But at present they were in a position of uncertainty, and it could not be said whether approaching developments would make the work of the clinic easier or more difficult.

The meeting passed a resolution urging an approach by the Council to the Home Secretary and the Minister of Education for help for the Institute, and also to the county councils of London and adjoining counties and certain boroughs with a view to obtaining an annual capital grant. The accounts, which were passed by the meeting, showed an excess of expenditure over income for the year of £1,188.

MEDICAL CARE OF THE AGED

At a meeting of the Liverpool Medical Institution on Nov. 13, with the president, Dr. H. WALLACE-JONES, in the chair, Dr. ROBERT KEMP opened a discussion on "Old People and their Medical Care."

Dr. Kemp spoke of the medical welfare of elderly patients in the Belmont Road Hospital, Liverpool, and in the Kirkdale Homes. The hospital cared for about a thousand sick old people and the homes for about the same number who were ambulant. Another thousand were looked after, according to the recent Merseyside Survey, in smaller religious or voluntary homes. Though this represented only about 3% of the old people in the district the majority of them could have been looked after at home but for the fact that they were single, widowed, or living apart from their families. Austerity was forcing many old people into institutions where hitherto they had often been medically neglected. The aim of a good medical service was to prevent people becoming bedfast and to get them back on their feet after an illness. The "bottle-neck" in bettering medical care was the numbers, training, and morale of those nursing the aged. They must be shown that their work could be worth while and well rewarded. Two "psychological brakes" were the apathy and hopelessness of the elderly themselves and the inertia of those who had previously been looking after them.

Dr. H. FULD stressed the magnitude of the task of caring medically for the aged, and enumerated the physiological changes that accompany senescence. He then discussed diagnostic pitfalls in the illnesses of old age. Students and young doctors needed better training in the technique of looking after old people. There was no need for the creation of a new specialty so far as old people were concerned. A hospital for old people only might be a gloomy place because of the high mortality among in-patients.

Dr. BASIL MURPHY presented a retrospect of the history of medicine on this subject from the Egyptian era to mediaeval times before describing some of his own cases. One case was that of an epileptic, aged 74, who in an attack stabbed his heart, which was sutured. After recovery he was operated on by Dr. Alexander, about 1905, and clearance of an old depressed fracture of the skull led to cessation of the epileptic attacks. The patient was alive at the age of 84 years.

Discussion

In the discussion which followed, Dr. ROBERT EVANS said that many old people admitted to hospital were suffering from two or more diseases, one of which was chronic, possibly of great medical interest but not causing symptoms, and a second acute but medically trivial disease like an enteritis or bronchitis. The cure of the second condition often enabled the patient to carry on his normal life despite the chronic disease. Deficiency diseases, including avitaminoses, were commonly part of a general malnutrition, often because of lack of either natural or artificial teeth, and this required the provision, in institutions for old people, of a diet which should be satisfactory nutritionally but require no chewing. Mr. COSBIE ROSS emphasized the great danger of immobilization in old age, and described the measures necessary to combat, especially, post-operative pulmonary embolism. These measures included an anaesthetic which would allow early recovery of consciousness; early post-operative exercises; raising the foot of the bed for forty-eight hours; and encouraging the patient to get out of bed soon after operation. For example, it was quite possible for a patient to sit out of bed four days after a retropubic prostatectomy. Contrary to the usual teaching, he had found local analgesia suitable for aged patients, especially in cases of strangulated hernia.

Dr. ROBERT W. KENNON said that the treatment of old people should be according to their physical age rather than their age in years.

Correspondence

Food Cuts and Calories

SIR,—On Oct. 23, 1947, Sir Stafford Cripps made the statement that, in view of the cuts in foods which he announced, the calorie value of our diet would fall to "just below 2,700 per day." Prior to that time it was claimed that our intake was 2,870 calories per day. Following the introduction of potato rationing, the Minister of Food stated that this step would reduce our calorie intake by about 70 per day. From these statements we might deduce that we now obtain somewhat above 2,600 calories per day. In view of these statements it was felt that a critical examination of the nutrient value of our diet should yield informative data concerning our actual intakes. This has been done and the figures are presented in the accompanying tables.

TABLE I.—*Rationed Foods*

	Amount per Week oz.	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Meat	14	1,000	56	84	42	14·0
Bacon	1	110	3	12	3	0·3
Cheese	2	234	14·2	19·6	460	0·4
Milk	40	680	36	40	1,360	0·0
Eggs	1	36	3	2·8	13	0·6
Butter } Margarine } ..	6	1,290	0	144	10	0·0
Cooking fat ..	1	253	0	28·1	0	0
Sugar	8	864	0	0	0	0
Jam	4	284	0·4	0	0	0
Bread	63	4,473	151·2	18·9	1,008	31·5
Potatoes	48	768	19·2	0	96	4·8
Total per week ..		9,992	283·0	349·4	2,992	51·6
Total per day ..		1,427	40·4	49·9	427	7·4

TABLE II.—*Selection of Points Goods per Month*

Points		Amount	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
6	Biscuits .. {	8 oz. plain } 8 oz. sweet }	1,936	43·2	61·6	288	7·2
6	Cheese	8 oz.	896	56·8	70·4	1,224	1·0
4	Canned fish (herrings)	8 oz.	440	48·0	27·2	224	3·2
4	Dried fruit (apricots)	8 oz.	400	11·2	0·0	208	9·6
2	Macaroni ..	16 oz.	1,536	48	9·6	102	6·4
2	Cereals	8 oz.	776	28	5·6	56	9·6
4	Dried potatoes ..	16 oz.	1,650	45·4	0·0	288	8·0
Total/month ..			7,634	290·6	174·4	2,390	45·0
Total/day			254	9·7	5·8	79	1·5

TABLE III.—*Personal Points per Week*

	Amount	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Chocolate (plain) ..	4 oz.	592	5·2	36·8	28	3·6
Per day		84·5	0·75	5·25	4	0·5

TABLE IV.—*Non-rationed Foods : Nutrients Available per Head per Day*

	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Pulses and nuts ..	33	2·8	0·6	9	0·6
Tomatoes and citrus fruit	7	0·3	0	6	0·1
Other fruit	40	0·4	0	11	0·4
Leafy green veg.	21	1·7	0	44	0·8
Other veg. (exc. potatoes)	9	0·4	0	19	0·2
Poultry, game, and fish ..	40	6·2	1·6	20	0·5
Total per day ..	150	11·8	2·2	109	2·6

TABLE V.—*Totals of Nutrients Available per Head per Day*

	Calories	Protein g.	Fat g.	Calcium mg.	Iron mg.
Rations	1,427	40·4	49·9	427	7·4
Points foods	254	9·7	5·8	79	1·5
Personal points	84	0·7	5·2	4	0·5
Unrationed foods ..	150	11·8	2·2	109	2·6
	1,915	62·6*	63·1	619	12·0

* First-class protein, 26·5 g.

These figures are calculated from the foods actually available by using the tables of "Nutritive Values of Wartime Foods" (Med. Res. Cncl. War Memorandum No. 14, H.M.S.O., 1945). The figures for bread presuppose that the full ration is taken in this form, but the figures are not significantly affected by taking a mixture of bread, flour, and flour products to the same B.U. value. The points goods have been selected to give as high a calorie and protein content as possible. Many actual selections fall short of these figures. The data for unrationed foods available are taken from the "Third Report on Food Consumption Levels" of the Special Joint Committee of the Combined Food Board, 1946.

It will be seen that these data give a daily calorie intake of 1,915. This value falls far short of the 3,000 calories which is recommended as the intake per day for a moderately active man and even short of the 2,500 calories for a moderately active woman. It would be interesting to know how the Ministry of Food arrive at the figure they quote. One can only assume that they calculate their data from the total amount of food available for civilian consumption without taking into consideration wastage (*a*) involved in storage, transport, and the breaking down of large bulk to small ; (*b*) caused by storage in shops and during serving ; (*c*) involved in preparation and cooking and on the plate. Much of this waste is inevitable, and to disregard it is to present a completely distorted picture.

From where are we to obtain, therefore, the differences between these calculated figures and the actual requirements ? For many people canteens are not available, and a restaurant meal will not supply more than 300–400 calories and 5 g. of protein. In addition a large number of people are not able to obtain or afford even one restaurant meal per day. It would be interesting to know what answers the Ministry of Food can offer to these points.—I am, etc.,

Biochemistry Dept.,
St. Thomas's Hospital Medical School, S.E.1. G. T. MILLS.

Diet and the Nation's Health

SIR,—It is with surprise that I read press reports of a discussion which took place at a recent meeting of the Hunterian Society and of the motion carried that "Our Present Diet is Undermining the Health of the Nation." In my opinion the reasons given by the speakers for the motion were not based on scientific and practical experiences. May I quote some of my own observations as an obstetrician. A comparison carried out at the Maternity Hospital of the University of Berlin showed that the average weight of 3,000 babies born in 1911–12–13 was 6 g. less than that of the equal number of babies born in 1919–20–21—i.e., during a period of actual famine bordering on starvation in Germany. The maternal morbidity and mortality rates were appreciably lower during the latter period ; in fact, for several years we were unable to show our students a single case of eclampsia, and this in two hospitals with 3,000 to 4,000 maternity cases per annum.

What became of the babies born during the hunger years ? Well, 20 to 21 years later they formed the backbone of Hitler's crack divisions which overran half of Europe and North Africa —and even then after several years of sharp food-rationing dominated by the slogan "Guns before Butter." In Russia following the 1917 revolution there was widespread starvation, but the babies born during that period became the defenders of Moscow and Stalingrad and the conquerors of Berlin.

I myself had to feed on a diet far inferior to that of the poorest Englishman of to-day, consisting almost entirely of black bread made up by potato peels, sawdust and turnips, artificial honey made from turnips and vegetables—again mostly turnips—no sugar or sweets, no milk, hardly any fats or proteins. But even so in 1921 I was in the winning boat against such countries as Sweden and Switzerland ; my children born in 1922 and 1923 twenty years later passed their medical examinations for the R.A.F. and the W.A.A.F. as A1. And remember, thirty years or so ago we did not possess our present knowledge of the importance of vitamins and protective foods.

May I be permitted to add that I consider the arguments for the motion as unfounded and even frivolous. The motion carried by the Hunterian Society may well help to undermine the morale of the nation if unscrupulously exploited.—I am, etc.,

London, W.1. STEPHEN K. WESTMAN.

Duodenal Ulcer and Priority Foods

SIR,—I was interested in Dr. A. H. Morley's letter on duodenal ulcer and priority foods (Nov. 8, p. 745) and would say a word on the other side of the picture. It is agreed, of course, that many duodenal ulcers are cured, temporarily or otherwise, or lie dormant for long periods, but surely it is also agreed that the only rational way to treat an ulcer subject is to keep him well, and that a bland diet, especially with regard to the protein intake, is a very important factor, if not an essential one, to that end. He is advised—and rightly, I believe—to avoid tough meat, stews, cheese, sausage, salty and spiced foods, yet the bulk of his rationed food will come fairly under these categories. He does better on white fish, but that is sometimes short, often of poor quality, and can be extremely monotonous. I am informed that an extended course of this can destroy the appetite and undermine the character, that an addict is liable periodically to break out into homicide, divorce, or a debauch of liver and onion, curried beef, kippers, or other flavoursome but deadly comestibles.

No doubt there are some who may not require these priority foods, but I am of opinion that any general curtailment of these would result in an increase, and probably a large one, in the incidence of ulcer breakdown. It is well to remember that such a breakdown may be regarded in these days as a small national disaster. Ambulatory treatment is seldom satisfactory, and the subject, to have any real prospect of cure, must lie up for weeks or months in the care of others at home or in our hard-pressed hospitals.

I feel exception should be taken to Dr. Morley's statement that duodenal ulcer "has, indeed, become a somewhat popular malady—and no wonder!" If this means anything, it implies an unfortunate innuendo. Surely the patient does not elect to have an ulcer—the diagnosis is with the physician. Any claim by an unknown patient can be readily checked as a rule. I have not found that ulcer patients consider themselves fortunate. Dr. Morley's estimation that this priority milk would float a battleship may be accurate, but surely this alternative use need not be considered at the present time. Our old friend Chad has just peeped over my pile of milk certificates with a startled comment on our naval establishment.—I am, etc.,

Sutton, Surrey. J. CRAWFORD.

SIR,—It must surely cause some astonishment that there are medical men who hold the view expressed by Dr. R. Stuart (Nov. 22, p. 842) that "the symptoms of chronic duodenal ulcer are chronic, recurring at regular intervals every day and every night throughout many years." Can he have in mind some atypical condition such as an ulcer extending to and constricting the pylorus? It is, after all, the alternating bouts and the much longer intervals of freedom from symptoms which constitute so invaluable a diagnostic feature of the disease. In this connexion I would quote Sir Robert Hutchison, when he says in his *Lectures on Dyspepsia* (1927, London): "The History is in many cases perfectly clear and sufficient alone to base a diagnosis upon. It is as follows: The patient will tell you that, often for years back, he has been subject to attacks of indigestion *which have been intermittent*, that is they have cleared up and he has been well between them." And again, to quote Sir James Walton in his *Surgical Dyspepsias* (1930, London): "When once the disease is well established one of its most characteristic features is the periodicity of the symptoms. This is more marked than is the case with gastric ulcers, and indeed *than in any other disease*. There will be attacks of acute symptoms persisting for some three or four weeks, which are followed by periods of complete freedom. These periods will nearly always last for some months and may persist for nearly a year."

In regard to the other point in Dr. Stuart's letter, although it may be conceded at once that regulation of the patient's habits—frequent small regular meals, avoidance of irritants and tobacco, worry and fatigue, and so forth—is of great importance in prolonging the periods of freedom from symptoms, a rigid regime of diet is considered by many authorities to be unnecessary. Dr. A. H. Douthwaite (July 12, p. 43) expressed this view.

This brings me to my original contention, to which I adhere, that to lavish 10 pints (5.7 l.) of milk a week (five times the allowance for the ordinary consumer at present) and priority in eggs on the chronic duodenal ulcers is indeed squandermania—an expressive word, for which I thank Dr. Stuart. It fits admirably.—I am, etc.,

London, N.W.7. A. H. MORLEY.

Vitamin-D Requirements in Pregnancy

SIR,—Dr. L. J. Harris is to be congratulated on his admirable survey (Nov. 1, p. 681) of the present state of our knowledge as to vitamins. I venture, however, to question the accuracy of one of his statements: "For nursing and expectant mothers 1,000–2,000 i.u. [vitamin D] daily may be prescribed. . . ." I made a search of the literature on this subject about a year ago: I found only vague and contradictory statements. The following two quotations from recent authoritative textbooks are typical: McCune[1] states that during pregnancy "an amount of vitamin D equal to that contained in 5 teaspoonfuls of cod-liver oil—that is, 1,700 i.u.—may be required in addition to a high calcium intake to prevent a negative balance and guarantee calcium retention." Shohl[2] writes: "400 units of vitamin D and 1 quart of milk daily should be included in the diet of pregnant women." No experimental evidence is brought forward in support of either of these statements.

I have recently completed a four-year survey of normal pregnancy in the out-patient department of the City of London Maternity Hospital. Some of the biochemical findings have been published.[3] They cover 226 48-hour calcium and phosphorus balances at various stages of pregnancy. They would seem to show that doses of vitamin D smaller than 10,000 i.u. per day have no influence whatever on calcium and phosphorus metabolism and that doses considerably larger than this (up to 36,000 units per day) exert a definite influence only if the calcium intake is above 1.5 g. per day in the early months and later 2 g.

This subject is a difficult and complex one. My findings, to be conclusive, must be confirmed on a larger number of cases. But this is not a matter of purely academic interest. It concerns us all—vitally. Until further experimental evidence, adequate and incontrovertible, is made available, I submit that we should play for safety. In a climate like that of England every pregnant woman should be given a supplement of vitamin D in doses of not less than 10,000 i.u. per day in the first 7 months, and 20,000 i.u. during the 8th and 9th months.—I am, etc.,

Como, Italy. E. OBERMER.

REFERENCES
1 McCune, D. J., in *Dietotherapy* (Editor, Wohl, G. W.), Philadelphia, 1945, p. 317.
2 Shohl, A. T., *Mineral Metabolism*, New York, 1939, p. 344.
3 Obermer, E., *J. Obstet. Gynaec. Brit. Emp.*, 1946, **53**, 269, 362; ibid., 1947, **54**, 432; ibid., 1947, **54**, in press.

H.T.S.T. Pasteurization

SIR,—As far as we are aware no report has been made of the efficiency of the H.T.S.T. method of pasteurizing milk on a commercial scale. The results of tests carried out by Dr. Porteous of St. Mary's Hospital on samples taken from three of our plants using this process therefore may be of interest outside our own organization.

One hundred and twenty-nine samples of the raw milk used gave a positive guinea-pig test for tubercle bacilli. The 129 samples of commercially pasteurized milk corresponding to the above raw were all negative in the test. All these pasteurized milk samples also passed the official phosphatase test.

The samples covered a period of two years from January, 1945, to January, 1947.—I am, etc.,

E. B. ANDERSON,
Chief Chemist,
United Dairies, Ltd.

*** This matter is discussed in a leading article at p. 914.—ED., *B.M.J.*

Thiouracil

SIR,—It is with great interest that I have read the review by Dr. H. Cookson and Dr. F. H. Staines (Nov. 15, p. 759) on their experience with thiouracil. With increasing experience in thiouracil therapy it is evident that the risk of immediate toxic effects is diminishing. I note, however, that the length of treatment is given as "a year or two and may be even more." That this chronic therapy with a drug which poisons the thyroid is not altogether without risk of far more serious consequences is shown by the work of Purves and Griesbach,[1] who produced

thyroid adenocarcinomata in almost 50% of rats to whom they administered thiourea for more than two years.

The histological picture of the human thyroid after thiouracil therapy shows marked cellular activity, and before its general use is recommended further research should be carried out on the possibility of delayed after-effects. The experienced surgeon who resects a toxic goitre knows that 99% of his patients should survive the operation, that about 90% will lead approximately normal lives without special supervision, and that, in the event of an error in diagnosis, malignancy will be revealed and can be treated without further delay. The thiouracil drugs are most valuable in preparing a patient for operative treatment, but caution is advised before suggesting that they should replace it.—I am, etc.,

London, N.2. HENRI ROUALLE.

REFERENCE

1 Purves, H. D., and Griesbach, W. E., *Brit. J. exp. Path.*, 1947, **28**, 46.

Measles Prophylactic

SIR,—Following your leading article (Nov. 8, p. 737) on the use of gamma globulin as a measles prophylactic it would seem worth while to stress once again the value of a dose of adult whole blood intramuscularly if given at any time up to the sixth or seventh day of incubation. Gamma globulin is expensive to produce and uses the time of highly skilled technicians. Blood, 4 to 10 ml. according to the child's age, taken from the mother and injected immediately, is cheap and speedy therapy. The marked difference in the severity of symptoms in the unprotected case and the partially protected contact is so constant that the method can be advocated as a routine measure when the first of a family of children is found to have measles or other contacts are known.—I am, etc.,

Stanmore, Middlesex. HARWOOD STEVENSON.

Dicoumarol

SIR,—I read with interest your annotation (Oct. 25, p. 662) on dicoumarol and subsequent letters. I feel that Dr. Frank Marsh (Nov. 8, p. 748) is on the right lines when he suggests a large dose for the first two days, then an interval, and subsequent smaller doses.

My experience with Quick's method of prothrombin estimation has been singularly unfortunate. The results I obtained were far too varied to permit of any serious consideration. We used the clotting time and attempted to double the original figure. This was done throughout by Lee and White's method. In a number of cases alarming features resulted before the clotting time had doubled. Obviously the drug has a cumulative effect, and the clotting time does not begin to rise appreciably until the patient has been on it for some time, and then it rises with marked rapidity.

I would suggest that the drug be given in maximal doses—i.e., 300 mg. the first day, 200 mg. the second day, then 150 mg. daily until the clotting time begins to rise, and at that stage withheld. When the clotting time has returned to its original value, dicoumarol should be given again. We used fresh-blood transfusion to lower the clotting time and found that it works fairly rapidly. There is at least a 48-hours latent period before intravenous vitamin K begins to show its effect.—I am, etc.,

Birmingham. M. J. PIVAWER.

Yeast Extracts and Fat Absorption in Sprue

SIR,—For a detailed discussion of the points raised by Dr. K. D. Keele (Nov. 15, p. 794) we would refer those interested to our paper in the current issue of the *Quart. J. Med.* (1947, **16**, 99). In that paper the evidence for the effectiveness of yeast extract is given, and due acknowledgment for statistical help is made to Mr. Dilwali (not Mr. Dilwater). As Dr. Keele rightly points out, we were not in clinical charge of the patients in Poona, and so we have relied mainly on biochemical evidence for the effect of yeast extract; nor were we in a position to "settle the issue" at that time by the use of yeast extract alone. However, we have since treated patients with sprue in this country and have been able to maintain them in clinical remission by yeast extract without any liver therapy.—We are, etc.,

D. A. K. BLACK.
L. P. R. FOURMAN.

Manchester.

Status Epilepticus after E.C.T.

SIR,—Dr. A. Folkson's memorandum on a case of status epilepticus precipitated by E.C.T. (Aug. 30, p. 335) prompts me to record a similar case.

In September, 1944, an African woman of the Yao tribe (who live on the borders of Tanganyika and Portuguese East Africa) was admitted to this hospital. She was about 45 years of age. The certificate stated that she wandered aimlessly among her neighbours, that she slept in the bush, and that she thought people were going to kill her. After admission she was either indifferent and preoccupied or nonsensically loquacious. She had corneal opacities and septic teeth. The spleen was enlarged, but there were no malarial parasites in the blood. There were no neurological signs or history of epilepsy. The blood Kahn was negative and the C.S.F. W.R. was negative, with no increase of cells or protein. Attention to her general health produced a partial improvement. On Feb. 20, 1945, she was tried with E.C.T. at 10 a.m. (105 volts, 0.4 sec., 160 milliamp.-sec.). There was a delay of 3 or 4 sec. The next day at 3 p.m. she suddenly passed into typical status epilepticus. At 3.45 p.m. she was given 1/2 oz. (14 ml.) paraldehyde in olive oil per rectum. The fits began to lessen in a few minutes and had ceased after 1/4 hour. There has been no recurrence to date.

—I am, etc.,

Dodoma, E. Africa. E. J. FOLEY.

Routine Serological Tests for Syphilis

SIR,—At a recent conference of doctors in America surprise was expressed that in this country serological tests for syphilis were not routinely carried out by law on such occasions as marriage, at life insurance examination, or on entry into the Services as is current practice in the States. It was furthermore stated that representatives of this country had indicated that such a proposal would lead to public outcry and would never be permitted, and in any case such a course was unnecessary, because the incidence of venereal disease is so much lower in this country than in the States.

Surely in these enlightened days such a position is indefensible? If we have no serological tests, what reason have we for saying that our incidence is low? Clinical manifestations of the disease are no guide, because they may be dormant for many years and thus be undetected. Is it national prudery, smug hypocrisy, or a fear of exposition which leads us to adopt this rather dubious delicacy on such a matter? I am not a syphilologist, but doubtless there are many with greater knowledge in the matter who can give the answer to this apparent diagnostic obscurantism, and whose views I should like to hear.—I am, etc.,

Bristol. K. G. BERGIN.

Penile Carcinoma

SIR,—The incidence of cancer of the cervix in Jewish women is relatively low, and this has frequently been ascribed to the observance of laws which combine common-sense hygiene with religion. Mr. W. Sampson Handley (Nov. 22, p. 841) brings forward evidence which suggests that it is the routine circumcision in the male which is the operative factor. If the "transference to the vagina of the mixed bacterial flora that flourish beneath the prepuce" ultimately, by means of chronic infection, leads to cancer of the cervix, then there must be many more cases in which, even without cancerous changes, it results in discomfort and chronic invalidism. Having built up a strong case and drawn the correct inference, your correspondent advises routine preputiotomy in male infants because "it is unlikely that the routine circumcision of male infants would commend itself to English opinion."

What are the objections to routine circumcision and how does preputiotomy meet them? Does the main obstacle to the former lie in the lack of knowledge of a simple operation or in the psychological objection to imitating the Jews? It seems to me that your correspondent's compromise is a bad one. It is true that circumcision, as generally taught, involves general anaesthesia, pressure forceps, scissors, and sutures, while slitting up the prepuce "in the first few days of life can be done without an anaesthetic." Although reference is made to "an experiment conducted on a national scale for two thousand years" (the estimate is a conservative one), there is no mention of the technique which has made it possible. In fact few, if any,

surgical textbooks mention it, and one can only wonder at the apathy of our surgical colleagues. Imagine the consternation that would be caused at the Final Fellowship examination by the question, "Describe the technique of circumcision as practised by the Jews."

"Ritual" circumcision takes about two seconds, and apart from a shield and scalpel does not involve the use of scissors, forceps of any kind, sutures, or general anaesthesia. Nobody can deny that the results are excellent in every way. Preputiotomy would take almost twice as long, on the average, and the introduction of scissors points (they would frequently have to be sharp ones) is not without potential danger to the meatus. The final result can only be described as aesthetically and cosmetically deplorable. Were it practised on a national scale there would soon be a revulsion of feeling on the part of public opinion and the incidence of cancer of the penis and cervix would rise to even greater heights. Your correspondent asks us to face the facts but has only produced half-hearted proposals to meet them.—I am, etc.

London, W.1. DAVID PREISKEL.

Chemical Carcinogenesis

SIR,—As you point out in your leading article (Oct. 25, p. 659), chemical causes of cancer are so numerous that specific action is not confined to any one of them. It is perhaps worth noting that they all cause damage to a group of cells, with stagnation of circulation, which must be maintained for months. Partly devitalized cells, with local stagnation, are quite characteristic of cancer. As the artifact and the disease seem to originate from the same conditions, the origin must be intracellular, and there is little doubt that local stagnation is a dominant cause.—I am, etc.,

Montreal. RICHARD KERRY.

Tapered Sutures for Vascular Surgery

SIR,—A successful issue after such operations as those for coarctation of the aorta, congenital pulmonary stenosis, etc., depends chiefly on the establishment of a water-tight, or rather blood-tight, anastomosis of the blood vessels concerned. Accurate apposition with no tension is essential if leakage is to be prevented, and this can generally be attained; but there is another snag—leakage from the needle holes—and I know of several disasters from this "complication." In these cases an atraumatic (eyeless) needle with non-capillary suture material was used with the obvious result that the suture did not completely dam the holes made by the needle of larger calibre. I put forward the suggestion, which may have been made before, that the suture material should not only be absorptive but that it should be tapered. Only the first few inches need be tapered, and experiment will easily prove the exact gradation of tapering necessary to adequately dam the holes made in the vessel wall by the needle. Most good fishing lines (made of silk) are tapered: there should be no difficulty in procuring tapered suture material.—I am, etc.,

Dundee. F. R. BROWN.

Synchronous Combined Total Gastrectomy

SIR,—I have read the article by Messrs. J. Basil Hume and Guy Blackburn (Nov. 22, p. 817) with great interest and feel that they deserve congratulations on their ingenuity in approaching this problem. While it is an asset of the method that the question of operability can be decided on abdominal exploration, there are a number of points I would venture to criticize. I cannot agree that the division of the thoracic arch in the combined abdominal and thoracic incision "is undesirable for the patient's convalescence." When, in the abdomino-thoracic approach, the costal arch and diaphragm are divided, the ribs can be retracted with minimal pressure and therefore minimal trauma and shock; again, the arch can be firmly reconstituted at the close of operation by a single suture through the cartilages. The resection of a rib appears to me a more serious problem for the patient.

Are they not too generous in their time allowance? A single surgeon, using the abdomino-thoracic method, can easily do an uncomplicated case inside two and a half hours. I certainly do not consider that "excision of the cardia and 2–3 cm. of the oesophagus is essential if ablation of a growth is to be radical." Some 80% of gastric carcinomas begin in the prepyloric region and only in the late stages involve the glands on the left of the cardia, while the glands on the right are removed in the standard partial gastrectomy for carcinoma. It is the spread to the coeliac axis and porta-hepatis glands that decides the issue as regards glandular involvement in late cases. For this reason alone total gastrectomy is unlikely to give late results better than partial gastrectomy in the case of carcinoma arising in the common site. Its best role is for linitis plastica, growths of the fundus and cardia, and as a palliative for certain late carcinomas. Finally, is the Roux or any type of entero-anastomosis really necessary in total gastrectomy? I have not found it so in a small number of total and a fairly large number of high partial gastrectomies.—I am, etc.,

Dublin. T. O'NEILL.

Anticoagulants in Coronary Thrombosis

SIR,—Prof. A. A. Fitzgerald Peel mentions my name in his letter in the *Journal* of Nov. 15 (p. 794). He does not seem to have used heparin in the cases he cites—the drug that produced such a remarkable recovery in Prof. Lambert Rogers's case of pulmonary thrombosis. Whether heparin offers any advantage over dicoumarol I do not know. It will be observed that Prof. Peel's first two cases had each more than one lung infarct before treatment was started. Two cases with hypertensive heart failure and lung infarct were given dicoumarol and developed further lung infarcts. His fifth case with hypertension and angina of effort, after treatment with thiocyanate and the blood pressure dropping from 220/110 to 180/94, developed a severe attack of coronary thrombosis.

I respectfully submit that Prof. Peel's cases are rather complicated to dogmatize about the action of heparin or any other anticoagulant in coronary thrombosis in its initial stage. Prof. Peel has, however, established in his letter "that the blood coagulability is not the only factor which influences the extension of a coronary thrombosis." In my judgment the two essential factors in producing coronary thrombosis are degenerated arteries in the heart and low blood pressure, which will favour the formation of a thrombus.

Coronary thrombosis usually occurs when the patient is quiet and often in bed, when the circulation is quiet and perhaps slow. In my letter of Nov. 1, I pointed out that it was the underlying cause—arteriosclerosis—that required treatment. A suitable regimen would be one in which flesh foods are reduced to a minimum, with plenty of fruits, vegetables, etc. From years of observation I have found the prolonged use of iodide of potash is the only drug I know that will arrest atheroma of the arteries and largely restore them. But the drug has to be given at least three months before decided changes can be observed from the improvement of the patient. Dr. Lauder Brunton expressed a similar opinion on this action of iodide of potash in his book on the action of drugs.—I am, etc.,

Glasgow. J. T. MACLACHLAN.

The Extent of Neurosis

SIR,—One cannot but express sympathetic agreement with Dr. Willoughby Clark's plea (Nov. 8, p. 746) that more time should be devoted to those suffering from functional illness. Nevertheless, his suggestion that two afternoons per week could be set aside for such patients—each presumably to be subjected to an hour's psychiatric probing—is for the average busy practitioner a sheer impossibility. This would entail the sacrificing of one's hard-earned half-day (often no half-day at all) and Sunday afternoon to this, albeit worthy, purpose. Admittedly the neurotic forms a certain proportion of the normal surgery "clientele," though I disagree with Dr. Clark's estimate that from one-third to two-thirds are in this category. It is considerably lower than that—I would place it at perhaps 15% to 20%. Many of these people have very mild functional derangements, which the much maligned pill and bottle of medicine go far to eradicate, combined as they are with the sympathetic advice of an experienced practitioner, who can find out quite a lot about his patients' problems in considerably less time than

the regular weekly hour advocated by your correspondent. Incidentally I have yet to meet a psychiatrist who did not prescribe phenobarbitone in some form for his cases.

Needless to say the more severe forms of functional disability should be referred to an expert, though in many industrial areas psychiatrists are in very short supply. One can only hope that more psychiatric clinics will be set up in the near future. All this and more will no doubt be provided in Mr. Bevan's nationalized Utopia, which we are assured is just around the corner. Meanwhile the general practitioner will continue to give of his best to the neurotic patient. But ten hours a week ! No, Sir ! It just cannot be done.—I am, etc.,

Blackburn. T. J. BURKE.

SIR,—Was there so little neurosis in the Victorian era ? I remember it was an axiom in Edwardian times that nervous disorders were rare among the working classes, and it was not till good King George's days that this idea began to be undermined. The 1914–18 war damaged it badly. Since then social workers have told me nervous disorders were frequent in all three eras, especially among women of the depressed classes.

Why did we meet them so seldom in hospital ? First, I think, because the sufferers had no suitable vocabulary. Pain, sickness, wasting, even our old friend " a nasty 'ackin' cough," were recognized respectable symptoms. Forty or fifty years ago, what sort of shrift would depression, fatigue, and anxiety have received at " out-patients "; and, to arrive at our second reason, what sort of treatment ?

It seems strange so little is known of the distribution and occurrence of the nervous disorders. In his book *The Spirit of Discipline*, Dr. Francis Paget has an interesting passage on accidie : " Homeless and solitary hermits are especially assailed by it, and monks find it most troublesome about twelve o'clock, so that some . . . have held it to be ' the sickness that destroyeth at noon-day.' " Dostoevsky notes the frequency of nervous disorders among Russian peasant women. Oliver Wendell Holmes notes its frequency in New England, and quotes the seventeenth-century divine, Cotton Mather, on this subject : " New England, a country where Splenetic Maladies are prevailing and pernicious, perhaps above any other." In the seventeenth century at home has anyone noticed what a superb clinical picture Bunyan gives us of Mr. Fearing in the *Pilgrim's Progress* ? Few men knew social life and conditions in the eighteenth century as John Wesley knew them, and he lived from 1703 to 1791. In one of his letters he refers to " Melancholia " as being so prevalent that it is known as the " Englishman's Disease."

Accidie, splenetic maladies, melancholia may have no determinate meaning. Neither has neurosis. Those who believe " nerves " to be a modern invention should look up Proverbs xviii, 14 : " The spirit of a man will sustain his infirmity ; but a broken spirit who can bear ? "—I am, etc.,

Glasgow. IRENE N. CLOUGH.

An Endotracheal Flange

SIR,—May I compliment Dr. John Gordon (Nov. 15, p. 785) on his design of a metal flange for use in endotracheal catheters under a face-piece ? Those anaesthetists who are unable to obtain such a flange or a catheter with rubber flange incorporated, and do not wish to tear the end of the catheter with a safety-pin, may welcome the following suggestion. Pierce the catheter with the point of a red-hot safety-pin. The resultant holes will be permanent and will last the life of the catheter without splitting.—I am, etc.,

London, W.4. DONALD BLATCHLEY.

Cats and Poliomyelitis

SIR,—Dr. F. L. King-Lewis's letter (Nov. 15, p. 795) tempts me to say that I had one case of poliomyelitis in a farmer who lived in an isolated farmhouse. In this farm there had been from time to time an epidemic in which the cats became paralysed and died immediately. This also may be coincidence.—I am, etc.,

Letchworth, Herts. NORMAN MACFADYEN.

Child-bearing and Tuberculosis

SIR,—I would like to join other contributors to your correspondence columns in congratulating Drs. C. J. Stewart and F. A. H. Simmonds on their paper (Nov. 8, p. 726) on the above subject. This carefully compiled review gives statistical confirmation to the results already published by myself in 1943 and 1946 and obtained in the special maternity unit for tuberculous women at Black Notley. When the unit was first opened in 1937 I approached the subject with scepticism, but over ten years' experience of treating a total of 260 patients, 75 of whom had active pulmonary tuberculosis on admission, has convinced me that it is difficult to justify termination of pregnancy *on medical grounds alone*.

Dr. P. Heffernan (Nov. 22, p. 837) refers to a temporary improvement which may occur in active cases during pregnancy, followed " in only too many cases " by an " acute flare-up " at the end of the puerperium. It does seem possible that physiological changes in metabolism during pregnancy may have some degree of beneficial effect, but much further research on this aspect is required, and until such an effect can be proved more than a clinical impression, or an arm-chair hypothesis, it should not enter into the practical management of tuberculous women. I must, however, again dispute the contention of Dr. Heffernan (and others) that pulmonary tuberculosis is particularly liable to " reactivate " or " flare-up " shortly after delivery. At any rate under the conditions available at Black Notley fewer cases break down after delivery than would be expected to occur within the same time in the natural course of the disease irrespective of pregnancy.

Apart from such inexorable progression of the disease, the real cause of those breakdowns that occur are due to such factors as the strain of caring for the infant, overwork, financial strain, etc. In other words, the cause of breakdown is social rather than medical, and if abortion is being considered for a phthisical woman we should recognize that the indications are indeed social and not the threat of harm resulting from pregnancy and labour *per se*. This of course raises important medico-legal questions, and Drs. Stewart and Simmonds's conclusion that its necessity must be established in each patient should be always in the forefront of our minds. Incidentally, the legend of a sudden fall of diaphragmatic level with delivery —and the alleged effects therefrom—still seems to worry many workers. Like Charles II, it is " an unconscionable time a-dying." Space will not permit me to enter into a dissertation on this particular aspect, but there is no doubt that the effect of diaphragmatic level has been very greatly exaggerated.—I am, etc.,

Black Notley, Essex. RAYMOND C. COHEN.

SIR,—The article on the above subject by Drs. C. J. Stewart and F. A. H. Simmonds (Nov. 8, p. 726) has prompted me to write expressing my alarm at the ever increasing number of articles which have appeared recently on this subject, all endeavouring to prove that pregnancy has no effect on tuberculosis. It is not my intention to challenge their views and findings except to mention that tuberculosis runs such a variable course that it is almost impossible to provide reliable controls. The articles are misleading in that the natural inference drawn from them by anyone not in close contact with the domiciliary control of tuberculosis is that there is no justification for terminating pregnancy in a case of tuberculosis, whether active or not.

The present-day appalling overcrowding as a factor in the spread of tuberculosis is well known. The fate of young children in tuberculous households was investigated by the Lancs County Council in 1929, and this proved that the death rate in children under 5 from non-pulmonary tuberculosis (two-thirds of the deaths being from tuberculous meningitis) was approximately fourteen times greater in a household where there was open tuberculosis than in a normal one. Under present-day living conditions this would no doubt be appreciably higher.

The development or otherwise of lung changes is only one of many factors that have to be taken into account. There are others that from a practical point of view are of far greater importance. Correlated with these is the appalling failure of

so many patients to take even elementary precautions against the spreading of infection. The other extreme is the mother who is over-anxious about infecting her child, and one has known this constant worry to have caused deterioration of the mother's general health, followed by a flare-up of the old disease.

I have at present a patient who was confined shortly before her admission to sanatorium. Neighbours agreed to take the baby on the understanding that as soon as the mother completed treatment the baby was to be returned to her. On discharge the mother was still an open case. The fact that she now realizes that there is little hope of her becoming fit enough to take the child back (he is unwanted by his foster parents) is, in my opinion, largely responsible for her present rapid deterioration.

Prolonged ante- and post-partum institutional treatment is advocated, but how can this be carried out with the extreme staff and bed shortages now prevailing? Lack of domestic help, added financial strain, and sleepless nights all help to undermine the patient's already devitalized system. These factors, together with many others, need careful consideration before finally condemning abortion in tuberculosis cases. The pathological lung changes are of less interest to me than these other possible catastrophes. As an employee of a service whose motto is, "The Prevention, Treatment, and Abolition of Tuberculosis," I deplore this drive for babies without full regard to the consequences.—I am, etc.,

Llanelly, Carmarthenshire. J. T. JONES.

Foetal Cries

SIR,—In the provinces and other places where induction of premature labour is accorded a place in obstetric practice there must have been many thousands of inductions performed with the Drew–Smythe catheter since its description in the *Journal* in 1931. Yet apparently no case of a foetus crying following introduction of air into the uterus by this means has been recorded until 1947, when three cases occur within ten weeks.

The third case was in the Birmingham Maternity Hospital on Nov. 5, when one of the residents was attempting to induce premature labour at the 37th week for disproportion in a primigravida. The cervix was dilated digitally, and the Drew–Smythe catheter passed behind the presenting part to puncture the membranes rather lower than intended, about 2 in. (5 cm.) from the internal os. Only 5 oz. (140 ml.) of liquor escaped, and the uterus was compressed in an effort to drain some more. On releasing the uterus some air was sucked back along the catheter, and the foetus started to cry. The noise was easily heard by the patient, the doctor, the theatre sister, and the pupil midwife, all at the bedside, and it was audible from the far side of the labour theatre. I was called in to witness the phenomenon, and the child obligingly performed for about five minutes at irregular intervals, each period of crying representing some five expiratory efforts; the noise, as I heard it, was a combination of the gurgling of bubbles of gas in water and true vocal-cord vibrations. It could be heard from any part of the room and was particularly loud through the foetal stethoscope. Foetal movements were active throughout.

Three days later a repeat puncture was carried out, but no further foetal cry was heard, nor did the patient go into labour. Eventually labour was initiated by injections of "pitocin," and a live infant weighing 5 lb. 3 oz. (3.1 kg.) was extracted by forceps on Nov. 16, eleven days after the first puncture.

In the cases described by Dr. E. Curphey (Sept. 27, p. 508) and Dr. Jean Burton-Brown (Oct. 25, p. 672) the induction was performed on multigravid patients a week before term, but this case clearly shows that a premature infant of less than 5-lb. (2.25-kg.) weight can be stimulated to respire in utero. It also demonstrates that the phenomenon is entirely without harmful effect to the baby. This might be anticipated, since it is obvious that the foetal air passages must normally be full of liquor, though the lung alveoli are collapsed; and it is well known to pathologists that a newborn infant can cry lustily at birth and still show complete pulmonary atelectasis at necropsy 24 hours later.

It follows that foetal respiratory movements must accompany the other foetal movements in pregnancy, especially when stimulated mechanically. These movements cause a flow of liquor amnii to and fro across the larynx without either distending lung alveoli or producing cord vibrations. This fluid is automatically expressed by the forces of normal labour, and the fact that some of it may have been replaced by air is of no significance to the infant's ultimate respiration. The high foetal mortality of previous reported cases has undoubtedly been due to interference.—I am, etc.,

Birmingham. W. G. MILLS.

Vaginal Temperature

SIR,—Following Dr. M. Moore White's advice (Nov. 22, p. 841) I have read the article by H. W. Hales (*Medical Press and Circular*, 1946, **215**, 310), which proved to be interesting, by no means beyond criticism, and entirely irrelevant to the subject matter of my letter (Oct. 25, p. 672), the burden of which was that basal temperatures taken orally give as much information in the study of cases of infertility as do those taken rectally or vaginally. It is quite beside the point that Hales has drawn attention to certain cases of chronic disease in which the rectal temperatures showed an elevation above the normal while the oral temperatures remained at or below the traditionally accepted normal level; and it is pertinent to remark that he does not mention the far more numerous cases of chronic disease in which this differential temperature effect is not manifested. If Dr. Moore White relies upon rectal temperatures in order to detect tuberculous endometritis it would seem probable that she is likely to miss cases; they certainly occur wherein neither oral nor rectal temperatures show any departure from the normal ovular pattern. A more reliable method, I submit, is the taking of routine endometrial biopsies.

Theoretical accuracy is not the sole criterion for choosing a particular clinical method; the patient's willing and continued co-operation is also worthy of consideration, and there is not the smallest doubt that few patients show any enthusiasm for taking rectal (or vaginal) temperatures for weeks on end, whereas most infertility patients will take oral temperatures with but little protest for as long as they are asked; and the important point is that oral temperatures are quite adequate for the detection of ovulation in a usefully large majority of patients.

The fact that Dr. Moore White's letter is immediately preceded by Mr. W. R. Forrester-Wood's report of a second patient having passed a thermometer into her bladder while endeavouring to take her vaginal temperature effectively answers Dr. Moore White's accusation that my condemnation of the method, because one woman had met with the mishap, was unreasonable. It also renders more than probable the previous occurrence of similar but unreported instances.—I am, etc.,

London, N.W.6. G. I. M. SWYER.

Student Health

SIR,—Attention to Mr. S. M. Drancz's letter on student health (Nov. 22, p. 843) is not without profit. I would suggest that in it are demonstrable some of the causes of our present position and direction. Inquiry will prove the adequacy and excellence of the medical services available to Edinburgh medical students and that the medical school has made provision for the services of an expert to study and report on student health. The proposal is made through the B.M.S.A. and support is sought of the N.S.U. and the Scottish Union of Students. These are all organizations which have grown up outside the Edinburgh Medical School. If there is necessity for local reform, demand properly should be made by that locality. Organization will grow to support policy. An Edinburgh student has no other responsibility than to his own medical school.

The proposal is that of the introduction of a compulsion; from which I would deduce that, first, the superfluity of the proposal locally punctuates the central origin of this policy. This is in accordance with Sir Ernest Graham-Little's observations about the colour of the B.M.S.A. We might do well to inquire into the real origins of that organization. Secondly, the chief effect in Edinburgh, therefore, would be the introduction of a compulsion. These observations are applicable to and germane to any centrally proposed measure. I must add that this is analysis of policy, not of one or more individuals.—I am, etc.,

Hull. GEORGE H. BLAIR.

Dimensions of Personality

SIR,—The review (Oct. 25, p. 657) by Dr. Eliot Slater of *Dimensions of Personality* by H. J. Eysenck, Ph.D., is surely calculated to send psychiatrists to a more than careful study of the book, especially as Dr. Slater ends with the striking, if also encouraging, assertion that "one consequence of this work will be that our text-books of psychiatry will have to be largely rewritten." It may be remarked at the same time that Prof. Aubrey Lewis, who contributes the foreword to the book, is much more cautious in his comments, and the author himself is far too modest to make any such claim. Dr. Eysenck, in fact, is disarmingly candid in the admissions he makes of the inconclusiveness of many of his experiments. The book deals with investigations and factor analyses based upon an "item-sheet" prepared for each patient admitted to Mill Hill Emergency Hospital. Two main factors emerged. The first of these the author calls "neuroticism"; the second comprises two groups, the "hysteria–dysthymia" bipolarity.

Statistical method must of course have grist to work upon, and strictly speaking it doesn't matter to the statistician whether his data are true or false; he still can produce his tables of correlations. In the book in question Dr. Eysenck seems to have gone out of his way to suggest that his data may not be reliable. He refers, for example, to the "known inaccuracies of routine diagnosis and assessment" in criticizing some of Dr. Slater's own work on p. 56 and returns to the same theme on p. 190 and elsewhere. In this connexion one of Dr. Eysenck's experiments on the relationship between hysteria and suggestibility deserves special notice. A number of hysterics were selected and tested by experiment, and it was discovered that they are no more suggestible than other types of neurotics. It would seem to be of significance, although Dr. Eysenck does not mention it, to know whether, when the hysterics were diagnosed in the first place, the question of the existence or otherwise of suggestibility was considered as a diagnostic feature.

Dr. Eysenck frankly refers to the difference of opinion on the subject of factorial analysis, pointing out that some psychologists consider the factors to be statistical artifacts. He remarks also on the somewhat discouraging fact that already 350 factors have been discovered by statistical methods. In his work on suggestibility, which Dr. Slater especially picks out as convincing, Dr. Eysenck draws attention, in his usual impartial way, to two objections which might justly be raised against his experiments on the relationship of hysteria and suggestibility (p. 190). He describes two additional experiments which were devised "to obviate these two objections." In the end he is compelled, rather naively, to admit that these also "show comparatively little reliability" (p. 192).

Other criticisms could be made, but one which I think will appeal to those who can detach themselves from the statistical habit of mind is implicit in the description of Prof. Guilford's investigation by questionary responses of large numbers of students. His analysis failed entirely to disclose any general factor of "neuroticism" such as Dr. Eysenck has discovered (p. 38). But, by reanalysing the figures and using statistical procedures different from those of Prof. Guilford, Dr. Eysenck found that a general factor did appear which "in many ways resembles our general neuroticism factor" (p. 39). To the statistician this no doubt is a perfectly ordinary transaction. To others it may almost look like prestidigitation by the abacist, or the gentle art of having it both ways.

We have it on the authority of Jeans that God is a mathematician with, as Bertrand Russell has expressed it, a passion for doing sums. Psychologists will no doubt be stirred at the thought that by the aid of a new mathematical technique they are being brought, if only slightly, closer to the Creator. I cannot help thinking, however, that the exuberance of Dr. Slater's local or personal loyalty may have led him considerably to anticipate this devout consummation. The new advances described in Dr. Eysenck's book, if they are substantiated, it seems to me, are largely academic at present and have little practical application to psychiatry. The book is written mainly in the hypothetical and conditional key which seems to me to be right and proper in view of the stage of investigation that has been attained.—I am, etc.,

London, W.1. FREDERICK DILLON.

Hospital Treatment of School-children in Shropshire

SIR,—May I express the hope that Dr. H. W. Bambridge (Nov. 15, p. 795) will prepare his case very carefully before making a major issue of the arrangements for the hospital care of school-children in Shropshire? A county medical officer who wishes to bring more and more of our affairs under his control, either because he is genuinely concerned about some of our less successful results or because he believes that by so doing he is consolidating his position as a potential "fuehrer" under the National Health Service, can be very convincing when dealing with a committee of laymen.

It is unfortunate but true that a great many photographs exist to show the appalling results of inept treatment of fractures in the bones of growing children. It is also true that statistics can be produced as to the need for a second tonsillectomy in children who have already been operated upon by general practitioners. (Which of us has not at one time or another heard a colleague say, "We don't do any surgery in the practice, just T.s and A.s and things like that"?) The occasional operator gets very useful results in routine surgery, but there can be few such who have not sometimes bitterly regretted that they had embarked on a seemingly simple task and found themselves most dangerously out of their depth. Errors of omission or commission can very easily be adduced in favour of any scheme to place the hospital treatment of school-children under the direct supervision of men or women of consultant status.

Let me stress that Dr. Bambridge can resent no more bitterly than I finding himself in a position in which he is allowed no latitude or discretion at all. It is infuriating to be told that any child who requires any sort of hospital treatment (which may merely be because an overworked mother cannot possibly nurse him at home) must be sent twenty-five miles to a hospital in a neighbouring county or forty-two miles if he is to remain in his own county, whether I can see any necessity for the move or not. I do feel, however, that there is a case, however specious some among us may consider it, to be answered and that our own cause can only suffer if we underestimate its plausibility in the eyes of the average layman.—I am, etc.,

Launceston, Cornwall. DONALD M. O'CONNOR.

Planning and World Population

SIR,—With reference to the leading article (Aug. 9, p. 214) and the letter by Dr. G. Macdonald (Sept. 27, p. 506) on the same subject—viz., "Planning and World Population"—I should like, with your permission, to air a few views on the subject. In the first place let me say that I agree with both of you to a certain extent. Your leading article led me, when I read it, to exercise one of my hobbies, mathematics, by calculating how soon, with an average rate of reproduction such as my own personal family shows, the human race would become extinct. I worked it out at a period of about 775 years. Having made that calculation, I wondered how much the population of the world would increase to in the same time if every married pair produced one more instead of one less than they started from. I found that such average families of three would amount in 775 years to eight and three-quarter billion for the population of the earth—that is, English billions—whereas the present world population is approximately 2,000 million. Obviously there must be at work still forces of no mean order for the limitation of population, so that your fear of overpopulation at a very early date seems somewhat exaggerated.

You rightly rule out war and pestilence as agents for limiting population now, for it is the function of U.N.O. and medical men to counteract their pernicious influences respectively, however much we may doubt their effectiveness in that objective within any reasonably short time. Famine and limitation of birth rate remain. One of these must prevail, if the other fails to act.

I cannot follow your logic when you say that even with radical reorganization of land use and agrarian methods "an ignorant man with a hoe, his wife; and his children are a totally inadequate foundation for an enlightened state of society, a high standard of living, and elaborate social services. Much less is such a family a secure foundation for the production of goods which can pay for the import of food from the few agricultural countries still possessed of an exportable surplus." Surely if the reorganization that you postulate were effected the primitive

conditions you depict in the words in inverted commas would disappear? Your argument is not sound.

Macdonald is right in thinking that your pessimistic attitude may do real harm. He quotes others to show that maximum production is still far from being attained from land in Africa, although he seems to feel sure that India, Java, Mauritius, and Jamaica can no longer be expected to improve their output. Baker and White say the population of South-east Central Africa is far below optimum. He rightly says that the population problem is one of *balance*. He says further that "the economy of grossly undeveloped countries can be improved more readily and more to the general advantage of the world by an increase in the supporting capacity of the land than by a restriction of population, though ultimately *that* must come." It must come when famine naturally follows unrestricted population increase, but it may come before that if the spirit of man is so broken by exploitation either by his fellow men or by an outraged Nature exploited by himself.

Another Baker tells how certain African tribes[1] deliberately set themselves to commit race suicide when their own foolish exploitation of their forest lands had made desert of fertile land. Their action was the wisest they knew to remedy their desperate plight. Life was not worth living, so they altruistically refused to pass it on to their offspring. Europeans are not so wise. They only *speak* of such action[2]: they *do* nothing about it. They do worse: they destroy what is of real value to keep up the price of the real in terms of the fictitious value—the mere token gold, and its even more fictitious substitute, paper money. They lend the fictitious money to those in need of real (food, clothing, etc.) produced by themselves. Their piling loan on debt and debt on loan to maintain the "gold standard" is no less absurd and complicated than the Ptolemaic astronomers' "piling cycle on epicycle, orb on orb" to maintain the geocentric theory of astronomy. The "balance" referred to by Macdonald is as great a simplification of present-day finance as was the Copernican astronomy a simplification of the Ptolemaic. One has only to equate the surplus products of each country to its needs from other countries to work out from these equations a unit of value that is indissolubly linked with the life of man on earth and so incapable of falling, in less than a generation, to less than half its previous value, as our old pound sterling has done. Even the smallest unit-value quantity of any of the necessaries of life would be of more use to a millionaire in a desert than a bag of gold.—I am, etc.,

Durban, Natal. C. LUNDIE.

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1 Baker, R. St. Barbe, *I Planted Trees*, p. 115.
2 Dunne, J. W., *The Serial Universe*, p. 37, London, 1942.

Tuxford's Index

SIR,—In the paper "Calculation of Tuxford's Index by Graphical Methods" by Mr. H. Campbell (Nov. 22, p. 821) the formula used was that given by Tuxford in 1939, based on measurements made in 1909–10. Tuxford, however, revised this in 1942, basing the revision on the measurements taken in London in 1938. Tuxford (1939) in describing the index said that "the formulae being based on weight/height ratio have the defects of that ratio" and gives a number of illustrations of these defects—namely, for boys of different physique who would all be regarded as of normal development because of their equal weight/height ratios, for children stunted in early life by disease, and for obese children.

Mr. Campbell's statement that "the validity of the assumption [that the index does provide some basis for a comparison between different groups of children and *between different stages of development among the same children*] was tested extensively against clinical examination by Huws Jones (1938)" is open to question. Huws Jones took one single set of measurements of a number of children and compared the indices derived from these with the clinical assessments of the same children. He did not take measurements over a period of time as a measure of the *different stages of development among the same children*. While it is true that he found that of the formulae considered the Tuxford index gave the closest agreement with the clinical assessment, in the second part of this paper Huws Jones showed the unreliability of the clinical method. Moreover, Prof. Bradford Hill made the cogent criticism that the clinician might, in his judgment of the nutritional grade, have been influenced by the physical measurements themselves. In any case Tuxford gives strong reasons against the "static" use of the index, seeming to prefer changes in it as measures of *changes* in nutritional state. Whether or not the formula is valid for that purpose has, as far as I know, not yet been proved.

Tuxford's index consists of two parts: (1) the anthropometric ratio weight/height, and (2) a refinement for age. The index does not therefore differ basically from weight/height—a formula which has been severely criticized as a measure of health or nutrition.—I am, etc.,

London, S.W.1. E. R. BRANSBY.

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Tuxford, A. W. (1939). *J. Hyg.*, **39**, 203.
—— (1942). Ibid., **42**, 549.

Aneurin Deficiency

SIR,—I was delighted to read (Nov. 15, p. 763) that Dr. W. Russell Brain (formerly my respected teacher) uses an argument in relation to aneurin deficiency which I have used for 15 years in relation to bad teeth. Medical men often jib at recommending extraction of very bad teeth, because *some* have had extractions and not benefited. Does not this show that the extractions were delayed too long, allowing joints to be irreparably damaged, perhaps bone marrow badly injured with toxins, etc.? Surely it is better to extract early and benefit the patient than to allow auto-intoxication for the rest of natural life.—I am, etc.,

London, N.1. K. MALIK.

The Lazy Eye

SIR,—Among five hundred lads between the ages of 16 and 18 examined in the last two years, twenty-two (4.4%) had a visual acuity of 6/18 or less in one eye. This figure is considerably lower than that quoted by Dr. G. C. Dansey-Browning in his letter (Nov. 15, p. 796); nevertheless, it is still a significant proportion, especially when it is realized that such a disability may be the cause of a youth's not being able to embark upon the career on which he has set his heart. I would therefore like to add weight to the plea for the recognition of this problem. If the majority of these visual defects are preventable without too much difficulty, there is every reason for suitable treatment being undertaken. From personal experience I can vouch for the fact that much heartburning and disappointment in later years would thereby be avoided.—I am, etc.,

London, E.1. ALAN WATSON.

Snoring

SIR,—You report Mr. V. E. Negus as stating (Nov. 22, p. 835) in the course of the discussion on Mr. I. G. Robin's interesting and instructive paper on above subject that the horse, cow, and cat would be incapable of snoring. There are certainly many exceptions to this rule in the case of cats; but it must be confessed that snoring will only take place when the particular animal relaxes into a sleep which is, for it, unnaturally deep; and this in its turn will never occur except when the cat is in a sanctuary which it believes to be absolutely inviolable.—I am, etc.,

London, W.5. FRANK CROSBIE.

Health Regulations for Air Travel

SIR,—I found Dr. R. H. Barrett's article (Nov. 8, p. 741) most interesting and helpful. Hardly a day passes without an inquiry on behalf of someone going abroad as to the necessary protective inoculations. In most cases it seems that the person going abroad receives from the shipping or airways company a communication giving a definite date of departure together with advice as to the inoculation procedure which must be completed before leaving this country. The person concerned then usually consults his own doctor, who in many cases turns for advice and help to the health department.

In order to assist these cases a weekly clinic has been started, and, provided there is prior knowledge of who to expect, the

necessary inoculations against typhoid, tetanus, typhus, and cholera can be undertaken. This service has been much appreciated, but in many cases the time available before embarkation is too short to allow even the necessary injections to be given and certainly is insufficient for full immunity to develop. This is such a frequent occurrence and is so irritating to all concerned that I am writing to inquire whether anything can be done by the medical staff of the shipping and airways companies to ensure that a person proceeding abroad has full information as to the protective inoculations required sufficiently early for these to be carried out in a satisfactory and effective manner.—I am, etc.,

Leeds. J. F. WARIN.

Research on Ageing

SIR,—In a previous communication to the *Journal* (Nov. 23, 1946, p. 796) Dr. J. H. Hannan emphasized the importance of extending the work of medical research from the hospital and laboratory so as to include the wider investigation of disease under field conditions. In this connexion the research work at present being carried out in relation to the process of ageing at once came to mind. There is a section of the population which could make a useful contribution to accurate and first-hand knowledge on this subject. I refer to members of the medical profession who belong to the 65-plus age group. Members of this group, many of whom are retired, are in a position to take a personal and practical interest in this branch of research work. They have the necessary knowledge and experience to assess the signs and symptoms of physiological ageing and to recognize those premature changes which are to be regarded as of pathological significance. The employment of members of the profession belonging to this group by a research unit for a field survey would yield reliable information on various problems relating to the process of ageing.—I am, etc.,

Helensburgh, Dumbarton. H. HYSLOP THOMSON.

Road Accidents

SIR,—With reference to letters in your recent issues and statements in the public press upon this subject, it may be of interest to stress the fact that road accidents now occupy an important place in our mortal statistics. In my opinion the theory that the majority of road accidents are due to ignorance of driving matters, car manipulation, and so forth does not go deep enough. I submit that in the majority of cases it is not ignorance of driving and mechanical matters that cause accidents, but psychological faults which cannot be detected by driving tests. I am not suggesting that driving tests should be abandoned, but there are certain people who are by nature particularly susceptible to accidents, and this personal psychological factor (possibly in part genetically determined) should be investigated to discover what particular factor is associated with accident proneness.

The constellation of causes is made up of several factors, and in all probability the psychological factor is the most important. Certain psychological tests yield significant correlation coefficients between the scores obtained and accidental rates. Jung was of the opinion that accidents of every sort, in greater number than the public ever suspect, were of psychological origin. The tests are not perfect (few tests are), but they would enable us to eliminate unsuitable people from those proposed as car drivers. Whether it is reasonably practicable to carry out such tests is another matter.

Halifax. G. C. F. ROE.

SIR,—Mr. T. C. Foley's letter (Nov. 22, p. 843) outlining the views and policy of the Pedestrians' Association is an excellent example of what may happen when a body of men forgets the debt which it owes to common humanity and chooses one of its activities in which to bind itself together. In this case the party bond is not more significant than the particular mode of transport which the members favour, and yet this bond, as I pointed out in my article (Oct. 18, p. 623), is enough to influence judgment and policy beyond reasonable limits.

All parties can quote cases to prove their point, and the truth is not, as Mr. Foley suggests, that the law is not enforced because magistrates are motorists, but because there is no strong public conviction that the restrictive laws affecting road users are either effective or enforceable. Magistrates, like most of us, are not only motorists but also pedestrians, cyclists, "trainists," "bussists," and "taxists" at varying periods of the day, and their emotions and judgment vary accordingly.

Mr. Foley's policies of low speed and strict law enforcement and of segregation of traffic attempt to solve the problems merely by restrictive legislation, a course which will commend itself to few unless it is accompanied by a vigorous campaign to learn more about the human causes of accidents as well as the mechanical, so that we may know what laws to pass and how to segregate traffic in a way which the community will support with confidence. Meanwhile, it may even be possible by study to discover how to tame and domesticate this wild animal instead of going to all the trouble and expense of building a cage strong enough to confine him for ever. I would submit, Sir, that my plea for organized research into the psychological causes of accidents is not more remote from reality than the solution proposed by the Pedestrians' Association.—I am, etc.,

London, W.1. KENNETH SODDY.

A Suggested Memorial

SIR,—Many friends of the late Walter Rowley Bristow have expressed a wish to share in a memorial to him. It has been suggested that his life and work would be best commemorated by the foundation of an annual or biennial Memorial Lecture, to be delivered, if circumstances permit, alternately in Great Britain and in the United States, the two countries in which he was acclaimed as an outstanding leader in orthopaedic surgery, and where he was held in such warm regard. When a sufficient endowment fund has been accumulated it will be entrusted to the British Orthopaedic Association. Contributions to this fund are now invited, and can be sent to Mr. George Perkins, 149, Harley Street, London, W.1.—We are, etc.,

G. R. GIRDLESTONE,
CHARLES MAX PAGE,
GEORGE PERKINS,
HARRY PLATT.

POINTS FROM LETTERS

Reduction of Certificates

Dr. L. S. WOOLF (London, N.W.11) writes: I noticed in to-day's *Daily Telegraph* that the Minister of Health has appointed a committee to advise on the practicability of reducing certificates. This is long overdue. I suggest that the following reductions might be made: (1) Surgical belts; (2) the first date of absence from work (the first and last certificates could be combined in one); (3) Milk certificates could be in some cases made out for longer periods; (4) panel certificates for sick benefit could be made out for fortnightly periods as well as weekly; (5) can nothing be done to save doctors' being used so often to sign documents as witnesses of signatures—e.g., passports, lost coupons, pensions, etc.?

Mental Health and World Citizenship

Major JOHN STARTIN, R.A.M.C. (ret.) (Beaworth, Devon), writes: Quoting from Dr. J. R. Rees's letter in the *Journal* of Nov. 22 (p. 837): "It is, however, far from easy in these busy days to get men and women to settle down to serious discussion and to formulate their ideas on paper for the benefit of other people: but this is what we want." In his closing paragraph he says: "I hope that this letter may be taken as an invitation of a somewhat urgent kind to those who feel a concern about these matters to do something . . ." I would suggest that the laws of lunacy and the general treatment of patients should be one of the first matters under discussion by the Congress. This to my mind is a fundamental in the treatment of the mentally afflicted, and until these matters are straightened out no real progress can be made in alleviating the lot of suffering humanity who fall into this class.

The Institute of Almoners has recently issued a statement on the functions and organization of an almoner's department. The duties of the almoner are described in detail in connexion with medical social work; other work within the hospital or clinic concerned with teaching and research; and work in co-operation with other social services and health organizations. Staffing and accommodation are discussed and for the benefit of employing bodies emphasis is laid on the need for the creation of an effective department as distinct from the mere appointing of "an" almoner.

Obituary

W. KING HUNTER, LL.D., D.Sc., M.D., F.R.F.P.S.G.

We announce with regret the death, on Nov. 7 at the age of 80, of Prof. Walter King Hunter, one of the most distinguished physicians of his generation in Scotland, and for over twenty years Muirhead Professor of Medicine at Glasgow. The active years of his life were spent in the service of Glasgow Royal Infirmary, where he was in turn student, house-physician, and a member of the visiting staff. He was in charge of wards there from 1911 until his retiral in 1934. From 1903 until his appointment at the age of 44 to the newly instituted Muirhead chair of medicine in 1911 he was lecturer in the practice of medicine at Queen Margaret College.

Hunter's early education was at the Glasgow Academy. He then entered the University, and graduated B.Sc. in 1888 and M.B., C.M. in 1890. Seven years later he proceeded M.D., and in 1901 be obtained the D.Sc. The University conferred on him the honorary degree of LL.D. when he retired from his professorship, and he was a fellow of the Royal Faculty of Physicians and Surgeons, and held various offices in the Faculty, including examinerships in medicine for the licence and for the fellowship. Hunter had been on the staff of the Glasgow Royal Hospital for Sick Children in his younger days, and he served in later years on the hospital board of governors.

During the 1914–18 war Hunter was a medical specialist, with the rank of major, on the staff of No. 4 Scottish General Hospital. For some years before his retirement he was consulting physician to the Glasgow Royal Mental Hospital, and he was one of the founder members of the Association of Physicians of Great Britain and Ireland. He also took an active part in the work of the local medical societies, holding various offices, including that of president of the Glasgow Royal Medico-Chirurgical Society. In earlier years Hunter spent some time on the Continent, visiting various clinics and studying particularly neurology in the Paris hospitals. This laid the foundation for a lifelong study of neurological problems, with which he combined a keen interest in haematology. His work in these two subjects alone formed the basis for a number of publications, including a small monograph on the anaemias.

Hunter was not an easy man to know. His rather formal speech and mannerisms tended to give a false impression of the man as he really was. Perhaps his most characteristic trait was a horror of overstatement and of flamboyance in speech, behaviour, and dress. What is now called "shooting a line" was abhorrent to him. To the man who was interested in learning clinical medicine his teaching was an inspiration and his equanimity an example. "Uncle Walter," as he was called by generations of students, will long be remembered with the late W. R. Jack, John M. Cowan, John McKenzie Anderson, and others, happily still with us, who carried on the clinical tradition of the Auld Hoose. One of the secrets of Hunter's happiness was the variety of his interests. He was deeply read in general as well as in medical literature. His appreciation of music, poetry, and painting was founded on a real knowledge of these arts, and he was devoted to quiet rural pursuits. All these were elements in the background of a busy life spent in the service of the community. When he was presented for the honorary degree of LL.D. he was described as "a great teacher and clinician, an original and advanced thinker, who had left his mark for all time on the Glasgow School of Medicine."—J. N. C.

P. L. GIUSEPPI, M.D., F.R.C.S.

Paul Leon Giuseppi died at his home in Felixstowe on Nov. 10 at the age of 66. Dr. Giuseppi, the son of a planter, was born in Trinidad, in the West Indies, where he received his early education. In 1900, on winning a Trinidad Major Island Scholarship, he came to this country to study medicine at St. Bartholomew's Hospital. There he won several awards, including the Jeaffreson Exhibition in 1900, the Junior Scholarship in 1901, and the Senior Scholarship in 1903. Dr. Giuseppi took his M.R.C.S. and L.R.C.P. in 1905, and in the following year graduated M.B., B.S., with honours in medicine, hygiene, and midwifery and gynaecology. He took the F.R.C.S. in 1907, and proceeded M.D. two years later. He also studied in Paris at the Pasteur Institute. Later he was a house-surgeon at the Royal Free Hospital and senior resident medical officer at Queen Charlotte's Maternity Hospital and at the Royal Waterloo Hospital. In 1910 Dr. Giuseppi went into partnership with the late Dr. Havell at Felixstowe, where he practised until his death. There he was senior surgeon to the Cottage Hospital, and also public vaccinator. During the 1914–18 war he was surgeon in charge of the Cliff Hospital in Felixstowe, and was responsible for naval and military units in the area. In the recent war he was surgeon to the E.M.S. Hospital as well as to various units of the Services. He acted as divisional surgeon to the St. Felix division of the St. John Ambulance Brigade, and served with the rank of major in the Home Guard.

Dr. Giuseppi served on the Council of the British Medical Association for several years, and was secretary of the Suffolk Branch for 28 years, a period of service interrupted only by his presidency of the Branch in 1933–4. To his local activities Dr. Giuseppi brought the same enthusiasm that he gave to his profession. He was a member of the urban district council from 1914 to 1947, a period that included three terms as chairman. Many local sporting, social, and cultural associations found in him a chairman or president who was no figurehead but took an active part in the running of each.

It was, however, in his hobby of collecting alpines that Dr. Giuseppi achieved fame beyond the limits of this country. His success in cultivating these plants brought letters from all over the world. He was not content merely to cultivate, but spent his holidays collecting specimens from the mountains of Persia, Russia, Spain, Portugal, the Balkans, and Crete. He discovered many new plants, and one was named after him by Kew Gardens. He was well known in the mountainous districts of these countries, and often after a hard day's climbing he would hold an informal surgery in the villages, many of which seldom saw a doctor. His enthusiasm was partly responsible for the formation of the Alpine Garden Society, of which he was honorary treasurer from its inception until his election as president in 1945. In the last weeks of his life he received from the Royal Horticultural Society their highest award, the Victorian Medal of Honour. Among other associations to which Dr. Giuseppi belonged were the Royal Geographical Society, of which he was a fellow, the Royal Central Asian Society, and the Alpine Club.

Whatever the activity Dr. Giuseppi was engaged in, his energy seemed endless and his thoroughness and enthusiasm were remarkable. In his own mind he carefully turned over the pros and cons of any suggestion and, having made up his mind to the correct course of action, he would support it fearlessly and in forthright fashion. He was outspoken in his criticism of ideas and points of view of which he did not approve, and inevitably this led to some opposition which in no way deterred him from the course of action which he judged to be correct. Looking back over the years it is surprising how seldom one can find errors of judgment even though his point of view was not always accepted. In his professional work this same forthrightness and self-confidence stood him in good stead with his patients, who had complete trust in him and who treated him not only as a doctor but with affection as a guide and friend.

Dr. Giuseppi married in 1910 Andrée Centeno, who died in 1942. He was married again in 1944 to Constance Browning, who survives him, as do his three sons by his first marriage.

SIR WILLIAM H. COLLINS

Sir William Henry Collins, who died at Wexham Park, Buckinghamshire, at the age of 74 on Nov. 30, will be remembered as a benefactor of the Middlesex Hospital, the King Edward VII Hospital at Windsor, and, more especially, of the Royal College of Surgeons of England.

William Henry Collins joined the Cerebos Salt Company in his youth and became managing director in 1916. He was also associated with other large companies. He was keenly interested in the welfare of the sick and a great admirer of the medical profession. He once said that he owed the profession "a debt I can never fully repay." His first considerable benefaction was a gift to the Middlesex Hospital of £25,000

in 1933. This was used to provide what has since been known as the Collins *X*-ray Department. He was a member of the board of management of the Middlesex Hospital, and later a vice-president.

He became chairman of the Kind Edward VII Hospital at Windsor in 1938, a position which he relinquished only in January of this year. He was an active and energetic chairman, taking the greatest interest in the development of the hospital. At different times he defrayed the cost of new boilers for the hospital, gave the sum of £25,000 towards the rebuilding of the out-patients department, and made other substantial gifts. Even after he had ceased to preside over it he remained a member of the hospital board, and he was also one of the trustees of the hospital.

His first great benefaction to the Royal College of Surgeons was a gift of £100,000 in October, 1943. This was used for the endowment of the department of pathology and to institute a chair of human and comparative pathology. In a letter which he wrote to Sir Alfred Webb-Johnson at that time Mr. Collins, as he then was, said: "It is essential that the Departments should have an assured income from endowments. . . . I trust that my gifts will enable the Council to proceed with confidence with their responsible task, and to engage the services of men of outstanding ability to assist them in their labours." Shortly afterwards the appointment of Prof. R. A. Willis was announced. In 1944 Sir William was awarded the Honorary Medal of the College. In March of the following year he gave a further £100,000 to endow the department of anatomy and to found a chair to which Prof. F. Wood Jones, F.R.S., was elected in June of that year. Sir William, who was knighted in 1944, was admitted an Honorary Fellow of the College on Jan. 10, 1946, at the same time as Sir Henry Dale.

His last gift was a third sum of £100,000 to provide increased endowments for the scientific departments generally. It will be recalled that this gift was conditional on an offer being made to the Royal College of Physicians of a site to the east of the Royal College of Surgeons in Lincoln's Inn Fields.

Colonel CYRIL HENRY HOWKINS died on Oct. 31 at the age of 71, after three months' illness, during which his courage maintained his good spirits and his mental alertness was unimpaired. He was a student of Birmingham University, and he took the L.D.S. in 1899. Then immediately after qualifying M.R.C.S., L.R.C.P. in 1901 he served as a medical officer in the South African War and gained the Queen's Medal, with four clasps. Subsequently serving as a volunteer, he played an active part in the Territorial Army in Birmingham, and particularly in raising the 1st South Midland Field Ambulance, which he commanded from 1910 to 1917, serving with it in the Battle of the Somme; for this he received the D.S.O. He was then promoted to be A.D.M.S. of the 61st Division in France, being one of the first Territorial officers to gain such an appointment. He was four times mentioned in dispatches and was decorated with the C.B.E. Later he received the Territorial Decoration and became a deputy lieutenant of the County of Warwickshire. From 1901 until his final illness he practised with signal success as a dental surgeon. In 1905 he joined the honorary staff of the Birmingham Dental Hospital, and from 1925 to 1945 he acted as its dean and gained the full confidence of the committees and of the students, in itself no easy task. For twenty years he was honorary dental surgeon to the Birmingham Children's Hospital, and for ten years examiner in dental surgery to the Royal College of Surgeons. At different times he was an examiner for the University of Sheffield; president of the Central Counties Branch of the British Dental Association and of the Section of Odontology of the Royal Society of Medicine; president of the Birmingham Medical Institute; chairman of the Association of Dental Hospitals of Great Britain and Northern Ireland, and of the Warwickshire Dental War Committee; joint honorary secretary of the Dental Education Advisory Council; and from 1939 to 1945 he was acting professor of dental surgery at the University of Birmingham. In all these offices his energy, shrewdness, and tact made him an outstanding success and he became one of the best-loved and most respected figures in his profession. In 1928 he was invited by the Dental Board of the United Kingdom to give a series of lectures on the anatomy of local analgesia. He also did valuable work in Birmingham in devising applicators for intra-oral radium in the treatment of carcinoma. He was keenly interested in Freemasonry and became Master of the Grosvenor Lodge. He was made Past Provincial Junior Grand Warden of Warwickshire in 1928. He was also a founder of the Lister Lodge and the University of Birmingham Lodge. He is survived by his widow, two sons, one of whom served as a major in the R.A.M.C., and a married daughter who is medically qualified. —W. B.

JOHN NATHANIEL BEADLES died on Nov. 1 at the age of 62 after a short illness. He qualified L.M.S.S.A. from the Westminster Hospital in 1910, and went on to graduate M.B., B.S. in the same year. After filling various house appointments at his own and other hospitals he went into private practice, and later served in the R.A.M.C. in the 1914–18 war. He joined the L.C.C. as a part-time school doctor in 1927, and was appointed a full-time A.M.O. in 1935. Dr. Beadles came of a long line of doctors from the time of Elisha Beadles, who was in practice as an apothecary in Pontypool and published a book on medicine in 1689. He wrote articles on various subjects, mainly relating to infectious diseases, and had many outside interests, being a keen chess player and a life member of the St. John Ambulance Association. His wide experience in his profession stood him in good stead in his public health work, and he devoted much time to the problem of mentally subnormal children. His modest and unassuming manner endeared him to his colleagues and to all who came into contact with him. He will be much missed by a large circle of friends and acquaintances and by the parents and children in whom he took a great interest. He leaves a widow and one daughter.

Dr. ELIZABETH COWPER EAVES died in Sheffield on Nov. 21 after a short illness. She was appointed demonstrator in physiology at the University of Sheffield in 1909, when she held the London B.Sc., and she continued to work in this department until the time of her death, serving under four professors, and specializing in neuro-histology, devising in particular special methods of staining the tissues of the nervous system. Colour vision was also a subject in which she was interested, and she had just completed a paper presenting the results of detailed observations over a period of years. She graduated M.B., B.S. in 1922, obtained her D.P.M. in 1924, and took the London M.D. in 1925. Dr. Eaves was president of the local association of the Medical Women's Federation for many years, and spared no effort to obtain equality for women students, especially on the question of resident student posts. She also conducted a follow-up study of all the women students from Sheffield who had qualified in the last thirty years. The Medical Women's International Association was one of her special interests, and she acted as international corresponding secretary for many years before 1939. Throughout the recent war Dr. Eaves spent her vacations doing locumtenent appointments, mainly in hospitals for nervous diseases. She was a very gifted pianist, and was devoted to her family and her work.

Dr. ROBERT CARMICHAEL WOOD, a well-known general practitioner in Edinburgh, died from acute poliomyelitis at the age of 39 in the City Hospital on Nov. 23. A student of Edinburgh University, he graduated M.B., Ch.B. in 1932, took the M.R.C.P.Ed. in 1936, and only last year became a Fellow of the Edinburgh Royal College. A younger son of the late Dr. W. W. Wood, who practised in the Comely Bank district of the city, he had been connected for a number of years with the Sick Children's Hospital, Edinburgh. In the recent war he served with the 8th Battalion the Royal Scots until 1941, when he was transferred to the 57th General Hospital in Cyprus. Later he was with the 92nd General Hospital in Naples.

R. W. D. T. and G. A. G. P. write: The sudden and unexpected death of Bobbie Wood from poliomyelitis will cast a deep shadow over the minds of the many friends he possessed. Those who knew him, whether in Edinburgh before and after the war or in the R.A.M.C. during his six years' service in Britain, the Middle East, and Italy, will always remember him for his absolute honesty, loyalty, and cheerfulness, and as the finest type of doctor—thorough, kindly, and wise, with the welfare of the patient his first consideration always. On his return from war service he rapidly built up an extensive practice, and was appointed an assistant physician to Leith Hospital. He will be sorely missed by his many patients as well as his many friends in all walks of life. To his young widow and to her two small children goes the sympathy of all who knew him.

A Memorial Service for the late Mr. W. Rowley Bristow was held in the St. Thomas's Hospital Chapel on Nov. 21. The Bishop of Rochester officiated, assisted by the Reverend H. Hedley.

Medical Notes in Parliament

NATIONAL ASSISTANCE BILL

On Nov. 24 the Minister of Health moved the Second Reading of the National Assistance Bill, the terms of which were discussed in a leading article in our issue of Nov. 8 (p. 736).

Mr. BEVAN said that under the Bill the welfare authorities would have a special responsibility for those who were suffering from pulmonary tuberculosis. The Government proposed to continue the scheme adopted during the war to encourage early cases to give up their jobs and to undergo treatment. They proposed to end the provision that the allowances made to such persons ceased when it was found that the condition was incurable. Pulmonary tuberculosis, like other forms of sickness, would be the responsibility of the National Assistance Board on the one side and the Regional Hospital Boards on the other, the former making the financial provision and the latter providing the treatment. The Government proposed to place upon the Assistance Board the duty of providing maintenance for the blind and upon local authorities a duty to make special schemes for their training and welfare. A larger measure of responsibility would be accepted for old persons. Welfare authorities would be given powers to establish special homes. Other categories of persons requiring assistance included the deaf. When the National Health Service came into operation the Government hoped there would be a large number of hearing-aids ready for free distribution to the deaf. Other persons handicapped congenitally or through accident would be attended to and would be taught occupations. This would be the responsibility of the welfare authority, dovetailing into the Ministry of Labour.

Mr. WALTER ELLIOT approved the Bill. He was glad the Minister was extending the tuberculosis schemes introduced by the Coalition Government. That would place on the Government a still greater responsibility for finding nursing staffs. He drew attention to Clause 45, under which any person who was aged or infirm could be removed from his house on the certificate of one medical officer of health, supported by the Court, and placed in a hospital or other place within or without the area of the appropriate authority and detained therein. Under the existing law in most cases at least two certificates were necessary before the removal of a citizen from his house and his detention on an indeterminate order. One medical certificate was needed to remove a person from his home if he was deemed to be insane, but subsequently two certificates must be obtained. He thought that wider safeguards might be necessary.

Mr. EDWARD EVANS was sorry to see that the definition of blindness in the Act was taken from the Blind Persons Act, 1920. This was a bad definition because it imposed on a medical man the obligation not only to make a medical assessment of a person but to relate it to his capacity for work. It was not the function of a medical man to make an industrial appraisement.

Mr. SOMERVILLE HASTINGS said he was grateful that under the Bill the cost of hospital treatment could not be counted as means. It was true that State pensions would be adjusted, but aged persons would have some pocket money while they were in hospital. He remarked that in 1944, when he visited evacuated people in various parts of England, he found both old people and children were well treated in nearly every case, but whereas the children were happy nearly all the old people were miserable. He therefore felt that in the homes which the Bill would set up there must be as much freedom as possible and little restriction on visitors or on coming in or going out.

Dr. BARNETT STROSS said the provisions of the Bill in regard to pulmonary tuberculosis would make life much easier for country medical men.

Mr. JAMES GRIFFITHS replied for the Government and the Bill was read a second time without a division.

Calories

On Nov. 17 Mr. E. P. SMITH said the British Medical Association's *Report on Nutrition* in 1933 demanded 3,400 calories as the minimum daily diet to maintain working efficiency. For persons doing heavy labour 3,500 to 4,000 calories was thought to be desirable. The report stated that a reduced food intake, in the neighbourhood of 2,000 calories, gave rise to disorders of digestion. Questions put recently to the Ministry of Food had disclosed that in rationed and in pointed foodstuffs the daily average intake was now 1,530 calories. He had further discovered that very few got the other 1,340 calories from unrationed foodstuffs. The Ministry of Food made its calculations by dividing the amount of unrationed food consumed in the country by the number of the population. An old couple in a lonely village were consequently estimated to receive 2,870 calories daily, when in fact their daily intake was probably less than 2,000. A man in gaol in 1938 received from 2,994 calories to 4,200 calories daily and a woman from 2,542 to 2,901. In 1947 a man in gaol received from 2,923 to 2,955 calories daily; a woman received 2,541 to 2,605; a boy in a Borstal institution got from 2,987 to 3,051 calories; and a girl 2,521 to 2,585. In a dietetic sense it paid to be in gaol. The averages which the Ministry of Food paraded were useless because the bases on which they were calculated as regards unrationed food were completely unsound

Dr. SUMMERSKILL said foods must be reduced to a common denominator to make an addition and therefore the calorie must be brought into the calculation. The Combined Food Board adopted the calorie during the war and not the Ministry of Food. All the Ministry did was to quote calorie values assessed as the Combined Food Board had assessed them. The consumption levels quoted by the Ministry of Food were the average consumption for the whole country, and the average calorie intake of 2,800 included an intake of 900 calories by an infant and of 4,500 by a heavy worker. The intake of an adult man might vary from 2,500 calories to 4,500 daily, and of an adult woman from 2,000 to 3,000 calories daily. The nursing mother got about 3,000 calories a day. The average for the agricultural worker was 2,600, but the extras which he got during seasonal activities raised it to well over 3,000, and unrationed food brought his intake up to over 4,000 calories One hot meal a day equalled 900 calories and one snack equalled 500 calories. Members must make these additions when they calculated the average for a family where the wage earner took his meals outside.

Medical Practitioners and Pharmacists Bill

The House of Lords passed the Medical Practitioners and Pharmacists Bill through the Report Stage on Nov. 25, and read it a third time on Nov. 27, in each case without debate. Its Second Reading in the House of Commons was set down for Dec. 5.

Uganda Medical Services.—Mr. CREECH JONES stated on Nov. 26 that in the Uganda Development Plan £1,500,000 was earmarked for medical and health services. It was essential to the training of African medical officers and to the efficiency of the dispensary system that a fully equipped central hospital should be established. Accordingly a grant of £477,500 had been approved from Uganda's territorial Colonial Development and Welfare allocation for the building of a new central teaching hospital at Mulago, Kampala. £100,000 was also provided for new hospital buildings, dispensaries, and health centres. There must be a teaching hospital in East Africa if African doctors were to be trained. At the same time, the ten-year programme placed great emphasis on preventive medicines and on dispensaries.

The Services

The Queen of the Netherlands has bestowed the decoration of Commander of the Order of Orange-Nassau upon Surgeon Captain J. C. Souter, R.N., in recognition of services rendered to the Royal Netherlands Navy during the war.

The King of Norway has bestowed the decoration of Commander with Star of the Order of St. Olav upon Surgeon Vice-Admiral Sir Sheldon Francis Dudley, K.C.B., O.B.E., F.R.S., for service to the Norwegian Navy Medical Service during the war, and the Queen of the Netherlands has bestowed upon him the decoration of Grand Officer of the Order of Orange-Nassau, in recognition of services rendered to the Royal Netherlands Navy during the war.

The following officers have been awarded the Efficiency Medal (Territorial): Major A. Willcox, Captain (now Temporary Lieutenant-Colonel) J. F. Hedley, Captain (Honorary Major) S. G. Cowper, Captains (now Majors) W. B. Evans and E. H. Hanson, and Captain W. F. de Coverly Veale, R.A.M.C.

NORTH PERSIAN FORCES MEMORIAL AWARD

Dr. John Norrie McArthur, F.R.C.P., has been awarded the North Persian Forces Memorial Silver Medal for 1946. The medal is awarded every year for the best paper on tropical medicine or tropical hygiene published in any journal during the 12 months ending Dec. 31 by any medical officer of under 12 years' service in the

Royal Navy, the Royal Army Medical Corps, the Royal Air Force, the Indian Medical Services, or the Colonial Medical Service. Dr. McArthur was awarded the medal for his paper on "Malaria Transmission in Borneo" which was published in the *Lancet*.

DEATHS IN THE SERVICES

Sir THOMAS O'DONNELL, K.C.I.E., C.B., D.S.O., L.R.C.P.I., was born on Jan. 18, 1885. He was the third son of the late P. O'Donnell, High Constable of the Barony of Glenquin, of Killeedy, Ashford, County Limerick. He qualified L.R.C.S.I. in 1879 and L.R.C.P.I. and L.M. in 1880, and in the following year was serving with the Field Artillery in Egypt. Later he served with the Kimberley Light Horse under Sir C. Warren in the Bechuanaland Expedition of 1885–6. In the Zululand campaign he was with the Inniskilling Dragoons and later he was attached to the Rifle Brigade. In the South African war he was mentioned in dispatches twice and awarded the D.S.O. for his services with the 12th Royal Lancers.

Colonel S. Lyle Cummins, late A.M.S., writes: The death of Sir Thomas O'Donnell has come as a great shock to all who, like myself, were closely associated with him during the opening phases of the 1914–18 war. "O.D.," as he was called by all who knew him, came to France as D.D.M.S. of the 1st Corps and from that time until his departure as D.G. in India he was the heart and soul of the medical directions that emanated from G.H.Q. It is to him that thanks must be given for a thoroughly good medical service in the period before the arrival of Sir Arthur Sloggett as Director-General in 1915. His kindness to me and to the many officers who "drifted in" to G.H.Q. during that long and difficult period I shall never forget. His work later as D.G. in India is a matter for another pen than mine, but I fancy that, as medical officer to G.H.Q. at that time, I can speak with authority about the eminent services that he rendered and the goodness and kindness of the "unofficial" D.D.M.S. to all and sundry at G.H.Q.

Universities and Colleges

UNIVERSITY OF ABERDEEN

At a meeting of the Senatus of the University on Nov. 26 the Venn Prize in Pathology was awarded to J. A. Shanks (Aberdeen) and the Fulton Prize in Neurology to W. I. Cranston (Galashiels).

ROYAL COLLEGE OF PHYSICIANS OF LONDON

The by-laws of the Royal College of Physicians of London have been amended in order that at least two general meetings of Members shall be held each year, and to allow for the appointment of a standing committee which shall concern itself with the interests of Members. These changes have been made with the intention of giving Members more voice in the affairs of the College. The first statutory meeting of Members was held at the College on Nov. 27, with Lord Moran, President, in the chair. One hundred and thirty-three Members attended, and the following were appointed to serve on the standing committee: Lord Moran, President (ex-officio), Dr. W. R. S. Doll, Chairman, Dr. M. J. McArdle, Secretary, Dr. H. S. Morley, Dr. E Halliwell, Dr. J. Holmes, Dr. J. F. Bromley, Dr. P. L. Mollison, Dr. W. J. O'Donovan, Dr. J. H. Hunt, Dr. E. Bywaters, Dr. C. Wilson, Dr. G. E. F. Sutton, Dr. A. Leishman, Dr. E. Darmady, Dr. K. A. Latter, Dr. R. Johnstone, Dr. R. Cove-Smith, Dr. J. R. Forbes, Dr. Helen Dimsdale, Dr. W. E. Gibb, and Dr. J. F. Loutit and Dr. L. W. Batten (ex-officio). Dr. Loutit and Dr. Batten were elected representatives on the Council of the College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A course of 72 lectures in anatomy, applied physiology, and pathology will be given at the College (Lincoln's Inn Fields, London, W.C.) from April 5 to May 25, 1948. There will be two lectures daily (Monday, Tuesday, Wednesday, Thursday, and Friday) at 3.45 p.m. and 5 p.m. The fee for the whole course is £16 16s. Fellows and Members and Fellows and Licentiates in Dental Surgery of the College will be admitted on payment of a fee of £12 12s. The closing date for applications is Saturday, April 3, 1948.

A series of practical demonstrations in the above subjects will be held at the College from March 22 to June 11, 1948, from 10 a.m. to 1 p.m., and from 2 p.m. to 3.30 p.m. daily. The fee is £21, and the closing date for applications is Monday, Feb. 2, 1948. The demonstrations will be open only to those attending the above-mentioned lectures and will be limited to 40 students; preference will be given to those unable to obtain practical instruction elsewhere and to ex-Service men.

Applications, accompanied by a cheque for the appropriate fee, should be sent to the secretary, Postgraduate Education Committee, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.

Medical News

Visitor from Australia

Dr. Arthur Metcalfe, the Australian Director-General of Health and Quarantine, will leave Australia on Dec. 14 for a three months' tour of Britain, Canada, and the U.S.A. to investigate all aspects of public health. He will pay particular attention to quarantine in relation to air travel. Dr. Metcalfe will travel under the terms of the Rockefeller Foundation Grant.

London Association for Hospital Services

Dr. W. Russell Brain, F.R.C.P., has been elected chairman of the London Association for Hospital Services in succession to Sir Bernard Docker, who will continue to serve as a member of the Council.

Award for Research

The gold medal in memory of Daniel Hanbury, awarded for "high excellence" in original drug research, was presented on Nov. 13 by Mrs. J. K. Irvine, president of the Pharmaceutical Society of Great Britain, to Dr. Hans Flück, Professor of Pharmacognosy in the Faculty of Pharmacy of the Swiss Federal Technical Institute, Zurich.

Swedish Award

At its annual meeting recently the Swedish Medical Society awarded its Anders Retzius Medal to Jan Boeke, of the University of Utrecht, for his researches in anatomy.

Sheriff for Breconshire

John Emrys Jenkins, B.M., B.Ch., of Chalfont, Llandrindod Wells, has been nominated Sheriff in the King's Bench Division of the High Court of Justice for Breconshire for 1947.

Medical Laboratory Technicians: Deferred Call-up

A circular from the Ministry of Health states that "certificates of identification" will be issued by the Ministry to laboratory technicians in training born in 1929 or later. The holder of such a certificate may apply for deferment of call-up under the National Service Acts until his training is completed—normally 3 years. This would give him the opportunity of obtaining a recognized qualification—e.g., the Intermediate Certificate of the Institute of Medical Laboratory Technology. The certificate will normally be given only to those trainee technicians who started training (*a*) before the age of 17, or (*b*) within 3 months of the end of whole-time education. Deferment of call-up in other cases would have to be referred specially to the Ministry of Labour and National Service by the Ministry of Health.

The Gordon Hospital

The Duchess of Kent formally reopened the Gordon Hospital on Dec. 2. Mr. John A. Dewar, the President of the Hospital, proposed the vote of thanks to Her Royal Highness, which was seconded by Mr. Lawrence Abel, surgeon to the hospital.

Dr. Barnardo's Homes Christmas Appeal

There are 7,500 children in Dr. Barnardo's Homes. A Christmas gift of 10s. would pay for one child's food for a week. Gifts should be sent to Barnardo House, Stepney Causeway, London, E.1.

Wills

Prof. Bryan Austin McSwiney, F.R.S., dean of St. Thomas's Hospital Medical School since 1940, who died on March 8, left £12,913.

COMING EVENTS

Benjamin Ward Richardson Lecture

Mr. C. G. Allen will deliver the Benjamin Ward Richardson Lecture on "The Transport, Handling, and Lairage of Animals intended for Slaughter" before the Royal Sanitary Institute (90, Buckingham Palace Road, London, S.W.) on Wednesday, Dec. 10, at 2.30 p.m.

Pharmaceutical Society of Great Britain

A lecture on "Modern Knowledge of Protein Structure and its Pharmaceutical Significance" will be delivered by Adrien Albert, Ph.D., before the Pharmaceutical Society of Great Britain (17, Bloomsbury Square, London, W.C.) on Thursday, Dec. 11, at 7.30 p.m.

Middlesex County Medical Society

A general meeting of the Middlesex County Medical Society will be held at Ashford County Hospital on Tuesday, Dec. 9, at 3 p.m., when there will be a demonstration of cases of peripheral vascular disease. Short papers by Dr. K. D. Keele, on "Diseases of the Abdominal Aorta and Its Branches," and by Dr. A. G. Signy and Major B. E. Tomlinson, on "The Chronic Appendix," will be read and discussed.

Society of Chemical Industry

A meeting of the Nutrition Panel of the Food Group of the Society of Chemical Industry will be held at the Chemical Society's Rooms, Burlington House, Piccadilly, London, W., on Wednesday, Dec. 10, at 6 p.m., when four papers on "Organoleptic Tests in Food Industry" will be presented.

Royal Sanitary Institute

A sessional meeting of the Royal Sanitary Institute will be held at St. Mary's Hall, Bayley Lane, Coventry, on Friday, Dec. 12, at 10 a.m., when Mr. W. Beaumont will read a paper on "Food Contamination and Potential Dangers to the Public Health."

Meeting of Radiologists

A joint meeting of the British Institute of Radiology, the Faculty of Radiologists, and the Section of Radiology of the Royal Society of Medicine will be held at 1, Wimpole Street, London, W., on Friday, Dec. 12, at 8 p.m., and on Saturday, Dec. 13, at 10 a.m., when a symposium on "Carcinoma of the Breast" will be presented. Mrs. E. K. Dawson, Prof. R. W. Scarff, Mr. R. C. B. Ledlie, Sir Stanford Cade, Dr. R. McWhirter, and Dr. Clemmison (Copenhagen) will open the discussion.

Middlesex Hospital Arts Society

The annual exhibition of the Middlesex Hospital Arts Society will be held in the board-room of the hospital from Monday, Dec. 15, to Thursday, Dec. 18, and will be open from 11 a.m. to 6 p.m. on Dec. 15, 16, and 18, and from 11 a.m. to 4 p.m. on Dec. 17. One of the main sections will include the work of members of the Royal Photographic Society in which there will be two special exhibits, namely, electron photomicrographs, by Prof. J. McIntosh and Dr. K. B. Merling, and philatelic research by *x* rays, by Mr. W. H. S. Cheavin, F.R.M.S., F.R.P.S.

SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—Tuesday, Dec. 9, and Thursday, Dec. 11, 5 p.m. FitzPatrick Lectures by Sir Arthur MacNalty on the History of State Medicine in England: (1) The Medical Department of the Local Government Board, and (2) The Foundations of the National Health Services.

ROYAL SOCIETY OF MEDICINE

Section of Psychiatry.—Tuesday, Dec. 9, 5 p.m. Discussion: Aggression in Relation to Emotional Development, Normal and Pathological. Openers: Miss Anna Freud and Drs. Clifford Scott, D. W. Winnicott, and John Bowlby.

Section of Experimental Medicine.—Tuesday, Dec. 9, 5.30 p.m. Discussion: Plasma Protein Fractions. Openers: Drs. R. A. Kekwick and N. H. Martin.

Section of Physical Medicine.—Wednesday, Dec. 10, 4 p.m. Clinical meeting at University College Hospital, Gower Street, London, W.C.

Section of Comparative Medicine.—Wednesday, Dec. 10, 5 p.m. Discussion: Nutrition and Resistance to Infection. Openers: Dr. P. H. Gell and Mr. H. B. Parry.

Clinical Section.—Friday, Dec. 12, 5 p.m. (Cases at 4 p.m.)

Section of Ophthalmology.—Friday, Dec. 12, 6 p.m. (Cases at 5 p.m.) Clinical meeting at the Moorfields, Central and Westminster Ophthalmic Hospital, Moorfields Branch, City Road, London, E.C.

Section of Radiology.—Friday, Dec. 12, 8 p.m. Combined meeting with the Faculty of Radiologists and the British Institute of Radiology. Symposium: Carcinoma of the Breast. Speakers: Mrs. E. K. Dawson, Prof. R. W. Scarff, Mr. R. B. C. Ledlie, and Sir Stanford Cade. Saturday, Dec. 13, 10 a.m. Symposium: Carcinoma of the Breast, continued. Speakers: Dr. R. McWhirter and Dr. Clemmison (Copenhagen).

BIOCHEMICAL SOCIETY.—At London School of Hygiene and Tropical Medicine, Keppel Street, W.C., Saturday, Dec. 13, 11 a.m. Symposium: Biochemical Reactions of Chemical Warfare Agents.

CHELSEA CLINICAL SOCIETY.—At South Kensington Hotel, 47, Queen's Gate Terrace, S.W., Tuesday, Dec. 9, 6.30 for 7 p.m. Discussion: Treatment of Disease in Wild Animals, to be opened by Mr. T. A. Cockburn, F.Z.S. Future meetings of the Society will be held half an hour later, namely at 7 for 7.30 p.m., to meet the wishes of the majority of members.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, Friday, Dec. 12, 8.30 p.m. Clinical meeting.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.—Monday, Dec. 8, 8.30 p.m. Discussion: Teaching and Research in Social Medicine. To be introduced by Prof. J. A. Ryle.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—Friday, Dec. 12, 8 p.m. Address by Prof. R. W. B. Ellis: The Effects of War on Child Health.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, London, W., Thursday, Dec. 11, 7.30 p.m. Dr. J. L. McLetchie: The Control of Sleeping Sickness in Nigeria. A discussion will follow.

POSTGRADUATE DIARY

EDINBURGH UNIVERSITY.—Monday, May 3, 1948, 9 a.m., 12th General Fortnight Refresher Course begins. Intended primarily for demobilized medical officers (Class II) and for insurance practitioners. Fee for graduates not claiming expenses from Government sources, 10 gns.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, Dec. 9, 5 p.m. Dr. D. M. Horstmann: Problems in the Epidemiology of Poliomyelitis.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—Tuesday, Dec. 9, 5 p.m. Dr. I. Muende: Pathological Demonstrations. Thursday, Dec. 11, 5 p.m. Dr. H. W. Barber: The Lichen Group of Eruptions.

LONDON CHEST HOSPITAL, Victoria Park, E.—Friday, Dec. 12, 6 p.m. Mr. J. W. S. Lindahl: Sinus Infection in Chest Diseases.

A two-months postgraduate course in surgery will be held at the Royal College of Surgeons in Ireland starting on April 12, 1948. The number of students is limited to 30 and the fee is 20 guineas. Students may enrol now with the Registrar, Royal College of Surgeons, St. Stephen's Green, Dublin.

APPOINTMENTS

Sir Frank Engledow, C.M.G., M.A., F.R.S., has been appointed chairman of the Food Investigation Board of the Department of Scientific and Industrial Research in succession to the late Sir Joseph Barcroft, C.B.E., F.R.S.

ABRAHAMS, ALFRED M., F.R.C.S., Assistant Surgeon, Walton Hospital, Liverpool.

ADDISON, P. H., M.R.C.S., L.R.C.P., Assistant Secretary, Medical Defence Union, 49, Bedford Square, London, W.C.1.

BALLARD, S. I., L.R.C.P.&S.Ed., Medical Superintendent, Isle of Man Mental Hospital.

DERBY HOSPITALS JOINT CO-ORDINATING COMMITTEE.—R. J. McC. Jamieson, M.B., B.Ch., and J. G. Pritchard, M.B., Ch.B., have been appointed assistant surgeons by the committee to work with the gynaecological and obstetric units in Derby hospitals.

DONOVAN, PATRICK FERGUS, F.R.C.S.I., Associate Professor of Surgery, University of Ottawa.

LEATHAM, A. G., M.B., B.Chir., M.R.C.P., Sherbrook Research Fellow to Cardiac Department of the London Hospital.

LONDON COUNTY COUNCIL.—The following appointments have been made in the Council's mental health services at the hospitals indicated in parentheses: *Assistant Medical Officers*, G. J. T. Fryer, M.B., B.S. (St. Bernard's, Southall); H. Lantin, M.B., B.Ch. (Long Grove, Epsom); B. Nicholson, M.R.C.S., L.R.C.P. (Banstead); P. Sainsbury, M.B., B.Ch., D.P.M. (Bexley); J. E. G. Vincenzi, M.R.C.S., L.R.C.P. (Claybury). *Second Assistant Medical Officers:* E. W. Dunkley, M.B., B.S., D.P.M. (seconded to St. Pancras Hospital Mental Observation Unit); J. Johnston, L.R.C.P.&S., D.P.M. (Claybury); P. R. A. May, M.B., B.Ch., D.P.M. (Cane Hill).

MADDOCKS, S. A., M.R.C.S., L.R.C.P., D.M.R.E., Radiologist, Hillingdon County Hospital.

BIRTHS, MARRIAGES, AND DEATHS

BIRTH

Leslie.—On Nov. 11, 1947, at Royal Infirmary, Bradford, to Frances Helen (née Robb), wife of Dr. William Leslie, a son.

DEATHS

Clune.—On Nov. 15, 1947, in London, John Joseph Clune, L.R.C.P.&S.I.

Duffy.—On Nov. 21, 1947, Henry Carson Duffy, M.B., Ch.B.

Hatt.—On Nov. 22, 1947, at C.M.S. Hospital, Ranaghat, Bengal, India, Mervyn Alexander Hatt, B.M., B.Ch., aged 44.

Higgin.—On Nov. 29, 1947, at Devon Square, Newton Abbot, Robert Francis Higgin, M.D.

Hogg.—On Nov. 26, 1947, at Middlesex Hospital, London, W., Cecil Beresford Hogg, M.D., D.P.H., of 24, Warkton Lane, Barton Seagrave, aged 57.

Moxey.—On Nov. 29, 1947, at Bournemouth, Vincent Moxey, M.R.C.S.

Riley.—On Nov. 28, 1947, at Ryde, Isle of Wight, Arthur Riley, M.B., Ch.B., aged 78.

Simpson.—On Nov. 26, 1947, at 54, Monkcastle Drive, Cambuslang, Scotland, Frank Tomisman Simpson, M.C., E.D., K.I.H., M.B., Ch.B., Lieutenant-Colonel.

Smith.—At Jerpoint, Sandycove, Co. Dublin, Eire, Trevor Nathaniel Smith, F.R.C.S.I.

Weir.—On Nov 25, 1947, James Samuel Richard Weir, L.R.C.P.&S.Ed., at 10, Chatsworth Road, Wembley, Middlesex, aged 68.

No. 46

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Nov. 15.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	(b)	(c)	(d)	(e)	1946 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	40	2	26	1	—	30	4	22	—	1
Deaths		—					2	3		
Diphtheria	195	27	60	25	5	330	27	97	29	13
Deaths	2	1	2	—	1	7	—	—	—	—
Dysentery	95	9	17	—	—	70	23	22	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	3	—	—	1	—
Deaths		—					—			
Erysipelas			48	16	4			47	5	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				53					41	
Deaths	61	4	13	2	6	63	6	10	7	2
Measles*	2,355	116	224	227	1	4,382	141	263	57	43
Deaths	2	—	—	—	1	1	—	1	—	—
Ophthalmia neonatorum	58	5	12	—	—	60	4	20	—	—
Deaths										
Paratyphoid fever	8	—	—	—	—	26	1	—	1 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	582	41	8	1	13	625	49	10	3	6
Deaths (from influenza)†	13	2	—	—	—	16	3	2	1	—
Pneumonia, primary			321	21				308	31	
Deaths		49		9	7		51			7
Polio-encephalitis, acute	15	2				2	—			
Deaths		1					—			
Poliomyelitis, acute	186	12	18	7	—	15	1	4	7	1
Deaths		—					—			
Puerperal fever		—	13		—		5	25		—
Deaths										
Puerperal pyrexia‡	117	4	7	—	4	141	13	17	3	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,947	124	353	54	42	1,293	81	273	26	42
Deaths	3	1	—	—	—	1	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	3	—	2	3	7	—	—	2	3
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,217	70	43	36	7	1,696	99	214	71	29
Deaths	3	—	—	—	1	9	1	—	—	—
Deaths (0–1 year)	378	47	51	32	20	384	59	72	19	12
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,582	742	593	179	118	4,723	780	627	167	110
Annual death rate (per 1,000 persons living)			12·3	11·3				13·8		
Live births	7,781	1260	907	312	224	8,820	1420	1091	336	245
Annual rate per 1,000 persons living			18·3	19·7				21·9		
Stillbirths	196	28	29			297	48	40		
Rate per 1,000 total births (including stillborn)			31					35		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The notifications for the week ended Nov. 22 suggest a more rapid decline than has been shown in recent weeks. Notifications of poliomyelitis were 142 (186) and of polio-encephalitis 3 (15). Figures in parentheses are those for the week ended Nov. 15. The marked decline in the notifications of polio-encephalitis is interesting, but fluctuations under this heading have been irregular and may be of no significance.

Discussion of Table

In *England and Wales* an increased incidence was recorded for scarlet fever 217, measles 176, and whooping-cough 145. There was a decrease in the notifications of diphtheria 24, poliomyelitis 12, and dysentery 10.

A rise in the incidence of scarlet fever occurred throughout the country; the largest increase was Staffordshire 25, and the only exception to the general trend was a decrease of 37 in Durham. The largest variations in the local returns of diphtheria were decreases in Lancashire 18 and Warwickshire 9.

Only small variations occurred in the incidence of whooping-cough, except for a rise of 69 in Yorkshire West Riding. A small increase in the notifications of measles was recorded in most areas; the largest rises were London 44 and Shropshire 37, and the only large decrease was Lancashire 45.

No further cases of dysentery were notified from Berkshire, Wallingford R.D., where 368 cases occurred in the preceding three weeks. A fresh outbreak of dysentery involving 13 persons was reported from Staffordshire, Willenhall R.D.; the only other large return was Lancashire 12.

For the tenth consecutive week a fall has been recorded in the number of notifications of poliomyelitis. The largest returns during the week were Lancashire 24 (Manchester C.B. 11), Kent 15, London 12, Middlesex 12, and Cheshire 11.

In *Scotland* increases were recorded in the notifications of scarlet fever 57, measles 33, and acute primary pneumonia 16. The only decrease of any size was one of 21 in the notifications of acute poliomyelitis. In Glasgow the notifications of pneumonia fell by 10 while the cases of scarlet fever notified rose by 27.

In *Eire* the chief features of the returns were an increase of 72 in the notifications of measles and a decrease of 15 in the cases of diarrhoea and enteritis. The increased incidence of measles was due to an outbreak in Wicklow, Bray U.D., where 78 cases were notified.

In *Northern Ireland* a decrease of 21 in the notifications of scarlet fever was recorded.

Week Ending November 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,812, whooping-cough 1,183, diphtheria 220, measles 2,233, acute pneumonia 503, cerebrospinal fever 30, acute poliomyelitis 142, dysentery 141, paratyphoid 4, and typhoid 3.

Mental-health care in Scotland is to be associated as closely as possible with the health services generally and not developed independently in isolation, according to a circular published on Nov. 25 by the Department of Health for Scotland. Mental hospitals and institutions for mental defectives will in future be provided as part of the hospital service generally by the Secretary of State working through Regional Hospital Boards and Boards of Management. Existing hospitals and institutions will be transferred to the new Service next July on the appointed day. Either wards in existing poorhouses used for mental patients will be converted into mental hospitals, or the patients at present in them will be transferred as soon as possible to other hospitals. Responsibility for looking after lunatics living in private houses under guardianship, or boarded out from mental hospitals, will also be transferred from local authorities to the hospital service. The principal duties which local authorities will carry out in future will be the appointment of authorized officers who will be responsible for taking the necessary action to have a lunatic placed in a hospital, or under guardianship, where there is no relative or friend willing and able to take the necessary steps. Local authorities are given the new duty of providing suitable training and occupation for children not in institutions who have been reported by the education authority as unsuitable for a special school, whether certified as mental defectives or not, and also for all certified mental defectives over 16 who are not in institutions. Authorities have to submit by Feb. 28 for the Secretary of State's approval their proposals for carrying out their mental-health functions in the new Service. The circular urges authorities to frame their proposals in consultation with the hospital organization, the Executive Council responsible for general-practitioner services, and any voluntary organizations concerned.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Prostigmin Test for Pregnancy

Q.—*Would you describe the prostigmin test for pregnancy? What is its efficiency and what are its disadvantages?*

A.—The test is used to distinguish between delayed onset of a menstrual period and early pregnancy. It entails the injection of 1 mg. prostigmin intramuscularly on three successive days. In the absence of pregnancy uterine bleeding occurs within 72 hours of the last injection, and sometimes so early that the second and third injections need not be given. No bleeding takes place if the patient is pregnant. The reliability of the test is difficult to assess, because it depends so much on a proper selection of cases. All women at the menopause, or with a history of previous menstrual irregularity, or with endocrine disease must be excluded, because a bleeding response is unlikely in such cases. With careful selection, and limitation of the test to healthy women of childbearing age with a normal menstrual history, it is 100% reliable when pregnancy is present and 90 to 95% accurate in the absence of pregnancy. The main disadvantages of the test are implicit in what is said above; a minor one is the occasional occurrence of transient giddiness and frequency of micturition following the injection of prostigmin.

Uncontrolled Dicoumarol Therapy

Q.—*Arising out of your annotation on dicoumarol (Oct. 25, p. 662), what advice could you give regarding the use of this drug by the G.P., since daily estimations of the prothrombin time are scarcely practicable in general practice?*

A.—Dicoumarol should never be used unless daily estimations of the prothrombin time can be made, as it is impossible to predict the dose for any one patient. Failure to do this may result in fatal haemorrhage. Several instances are reported in the literature in which haemorrhage failing to respond to blood transfusion has followed uncontrolled dicoumarol therapy.

Effect of Heat on Penicillin

Q.—*What is the effect of heat on penicillin solution, and what is the rate of deterioration with increasing temperature? If it is highly thermolabile, how, when it is injected, can it withstand the temperature of the body of a patient with a high fever?*

A.—The rate of deterioration of penicillin in solution increases progressively from 0° to 100° C. and above. In the lower part of this range the process is so slow that the change would be unmeasurable over a period of less than several days: penicillin remains in the body only a few hours, and in any case the difference between normal body temperature—37.5° C.—and that attained in high fever—say 41° C.—is relatively small. The purer penicillin now produced is much more stable than the earlier product, and solutions can be heated to 60° C. without appreciable loss of activity; even boiling for short periods has little effect on it.

Needles for Intramuscular Injection

Q.—*What are the shortest needles for routine use in the intramuscular injection of fluids into the vastus externus and the deltoid?*

A.—There are various factors which make a definite answer to this question somewhat difficult—for example, the variation in physical characteristics of different patients, and the quantity and consistency of the fluid to be injected. In general, it can be stated that short needles are more dangerous in that they are more likely to break; therefore if very short needles are used they should be of relatively wide bore. A good safe needle for ordinary purposes is one 1½ in. (3.75 cm.) long and 20 B.W. gauge.

Hearing-aids in the Tropics

Q.—*Can you tell me how to prevent damage to the crystal-microphone amplifying valve in modern multi-valve hearing-aids caused by the hot, humid climate of India? Is there any means of conditioning the entering air?*

A.—The problem of the prevention of damage to hearing-aids by hot and humid climates is well recognized by most makers and is receiving their attention. The microphone crystals are frequently treated so as to be made moisture-proof. Unfortunately crystals so treated tend to become less efficient in high temperatures. Different crystals, such as potassium dihydrogen phosphate, are being tested in the hope of finding some which are more robust than those hitherto used. When a hearing-aid fails owing to the effect of moisture it may be desiccated. This can be done by placing the entire instrument into an ordinary jar type of desiccator containing phosphorus pentoxide. This is probably a more satisfactory method than incorporating a pack of moisture-absorbing substance in the instrument.

Medical Unfitness in a Witness

Q.—*What is the accepted procedure for a doctor who is asked in a court of law to give the diagnosis in the case of a patient who should have attended as a witness? The patient I have in mind was suffering from asthma, and in my view was fit to travel but not to give evidence. The Court insisted on his appearance, and the consequent strain caused a relapse. Is it usual for the Court to overrule a medical opinion?*

A.—A witness who is unable to attend court and give evidence should furnish a medical certificate of such unfitness, and if this is clear and unequivocal it will generally be accepted. In the case quoted the doctor might properly have certified that the witness was unfit to attend *and* give evidence; if called upon by the Court to state the diagnosis he is bound to do so. As it would be useless for the patient to attend unless he could give evidence, it was really irrelevant to say that he was fit only to attend. By admitting this the doctor left it open to the Court to infer (as it did) that the witness's disability was only of a minor degree, and that perhaps he was able to give evidence in spite of the doctor's opinion to the contrary. The Court is perfectly entitled to disregard evidence, medical or otherwise, which is not strong enough to carry conviction. If the patient had been certified as fit to give evidence at home this could have been arranged, such evidence being taken "on commission," thus saving the patient the fatigue of travelling to the court.

Serum-bromide Estimation

Q.—*What are regarded as the normal limits for a blood-bromide estimation? Apart from the oral administration of medicinal bromide, what conditions may cause a rise in the blood bromide?*

A.—The method used in clinical laboratories for the estimation of serum bromide is not very accurate, and concentrations less than 25 mg. bromide per 100 ml. cannot be estimated. A normal serum bromide is therefore reported as "less than 25 mg. per 100 ml." The true serum bromide of healthy subjects is much less than this, and could be expressed in micrograms rather than milligrams per 100 ml. The writer has never heard of increases in serum bromide due to any cause other than the ingestion of sodium, potassium, or ammonium bromides; such ingestion might be medicinal or accidental.

Repeated Hypnotism in a Child

Q.—*The father of a boy of 2 hypnotizes the child almost daily in order to get him to sleep. The grandmother fears that harm to the child may result, and asks whether the practice could be stopped on the ground of cruelty. According to her the child is well behaved and sleeps well naturally. There seems to be no doubt about the hypnosis: the father is an electrician who has apparently acquired the knack. Can you tell me if harm to the child is likely to result?*

A.—It is difficult to answer this question without knowing the nature of the alleged hypnosis. This may consist only in stroking movements which the child finds pleasant and does not associate with their after-effects; on the other hand he

may be conscious of being dominated by his father against his will by an apparently magical method, and be seriously frightened by his own sense of helplessness against such omnipotence. At best, this practice is undesirable as establishing an unnatural relationship between father and son as well as a habit of artificially induced sleep, and it may well prejudice the child's emotional and social development. There seems to be no evidence of cruelty as such, but the situation is certainly fraught with danger to the child.

Local Analgesia in Dentistry

Q.—*What is the usual local analgesic used nowadays in dentistry? Recently, after local injections, patients have complained that the heart seemed to race and there was a feeling of imminent collapse. Why is this, and what can be done to prevent it?*

A.—The most usual local analgesic for dental purposes is procaine. Adrenaline is incorporated in the solution in order to prolong the effect of the analgesic by localizing it. Large quantities of procaine can be injected without untoward effect. In dental surgery 1 to 2 ml. is the usual amount, so that the procaine itself is unlikely to be the cause of the condition described. The most common cause is the added adrenaline, which will of course give rise to such symptoms, particularly if some of the solution enters the blood stream through inadvertent puncture of a small vessel during the injection. Other substances are sometimes employed in place of the adrenaline as the vasoconstrictor, and it is claimed that unpleasant effects can thereby be avoided. Should the subject be particularly susceptible, procaine can of course be injected without a vasoconstrictor, though the analgesia is likely to be of shorter duration.

NOTES AND COMMENTS

Dupuytren's Contracture.—Dr. KENNETH MCFADYEAN (London, S.E.24) writes: Under "Any Questions?" (Nov. 8, p. 757) the treatment of Dupuytren's contracture is said to be either surgical or by administration of vitamin E. No mention is made of radium therapy in spite of the fact that during the last thirty years many cases have been treated at the Radium Institute, and doubtless elsewhere, with cure or improvement in many cases.

Fissured Lip.—Dr. L. S. WOODS (Albury, New South Wales) writes: In your reply (July 5, p. 41) no mention was made about dentures. An upper denture which allows the inner margin of the upper lip to overlap slightly on one or other side of the mouth may extend the moist surface of the lips in the corner of the mouth to the normally dry skin. This skin will become soft, and a crack or fissure may form. It is cured by adding to the upper denture, making it considerably thicker. This tightens up the slack, as it were, in the overhanging inner side of the upper lip, and the moist skin then remains dry.

Removal of Superfluous Hair.—Dr. CLARA M. WARREN (Kew Gardens) writes: In "Any Questions?" (Nov. 15, p. 805) there is a query about removal of superfluous hair. The answer is sharp and short, and in my opinion shows a complete disregard of all the factors which would induce a young woman to consult a doctor about hirsuties. It is unfeeling and unpractical. It is a mental tragedy for any woman to become conscious of excessive hair growth, particularly when it is on the face. Neuroses, feelings of inferiority and shame, and even threatened suicide are on record in cases of such handicapped women. The psychological shock if a woman is merely told to go away and use a razor can easily be imagined by an intelligent doctor. Advertisements and beauty culturists are probably responsible for the advice to use wax or depilatories. In elderly subjects these methods may be preferable, but in young people will finally lead to more extensive and thicker hirsuties. It is, of course, quite possible to pull out hairs, but as they grow again in from three to four weeks there will always be a consciousness that other people are looking at the regrowing bristles. Patients have been known to spend an hour a day for months pulling out hairs from the chin, and even then failing to keep the skin clear. It has generally been observed that shaving or pulling out hairs causes an increased stiffness and a stimulated growth, and after a few months the root of the hair becomes longer and the papilla situated deeper in the skin and more difficult to deal with when proper methods are used. In the majority of cases, the hirsute condition is familial and hereditary, and develops later than the spontaneous type, when the hairs first appear in the late 'teens and early twenties. Hirsuties as part of a generalized excessive downiness is fairly common, but, although more difficult to treat, it can be helped. Exposure to ultra-violet light will make it worse. Endocrine factors play a very small part in common hirsuties. Apart from the recognized adrenal and pituitary conditions, dysfunction of the other endocrine glands is not marked. Clinicians have found that modern treatment with various endocrine substances has failed. Epilation by the use of x rays is avoided in this country, owing to the very real danger of atrophy and telangiectasia of the skin—a final result worse and more difficult to hide than the original condition.

Electrolysis is safe; and the direct current of 1-3 milliampères required can be obtained from a battery, so that expensive apparatus is not necessary. A suitable handle and a very fine steel needle connected with the negative pole, and a good light, are essential. The circuit should be completed through a moistened pad held by the patient and connected with the positive pole. No scarring or marking should result from this method, and, although tedious in cases with many coarse hairs, it is satisfactory. From 40 to 60 hairs can be dealt with in a half-hour sitting. Bad cosmetic results occur with too strong a current, and stippling of the skin if the wrong pole is used for the needle.

For the type with coarse hair that has been frequently shaved or plucked or otherwise stimulated a stronger current, such as is produced by a diathermy apparatus, is most helpful. An ordinary portable medical diathermy can be used by a unipolar method, the spark-gap being almost closed and the needle contained in a holder with a satisfactory make-and-break. Or an interruption can be obtained by means of a foot pedal. A make-and-break is essential, as the flowing current will always be too much for the skin. The amount allowed to pass in order to destroy the root of the hair takes only a fraction of a second, and starts at the point of the needle. Incidentally the needle must be kept quite clean and polished, or the current will coagulate the skin at the hair orifice. From 100 to 120 hairs can be dealt with by diathermy in half an hour. No subsequent marking of the skin will result if care is exercised and closely adjacent hairs are not treated at one sitting.

A certain amount of regrowth of hair apparently occurs in extensive cases of hirsuties during treatment, but this is not due to failure to kill the roots, but to a certain stimulating effect of the electric current on young hairs in the vicinity. These, however, can readily be treated at a subsequent sitting. Down or lanugo hairs do not respond well to electrical treatment. The roots are short and tough, and the lanugo emerges through so fine an opening in the skin that the passage of a needle will be difficult. This type is better in the winter months, when there is no stimulating effect of sunlight, and by treating any large coarse hairs among them considerable cosmetic improvement results. Ultra-short-wave diathermy apparatus can be used in a similar manner, and is preferred by some operators. It is, on the whole, a more painful method than treatment with a medical diathermy apparatus, but it is less painful than electrolysis on a mains set. The small milli-ampèrage required for electrolysis from a battery set makes this the least painful method.

Mosquito Bites.—Dr. LOUISE FRASER (Bournemouth) writes: In a recent issue under "Any Questions?" the treatment of mosquito bites was dealt with (Aug. 30, p. 357) and the statement made that "once a mosquito bite has occurred there is little that can be done to alleviate the irritation," but some substances were recommended. These did not include the most efficacious remedy of all—i.e., a piece of soap, the commoner the better. This wetted and rubbed on the bite acts almost like a charm. The irritation disappears very quickly and the swelling subsides as one looks at it. The irritation usually returns in about twenty-four hours but less virulently. Another application of the soap is as efficacious as the first. Having lived in a mosquito-infested country for many years and tried every advertised or recommended remedy with little or no success, the relief caused by this simple and handy remedy made one cease to dread the mosquito and its bite.

Confidence Trick.—Dr. A. O. F. Ross (Liverpool) asks us to make it clear that he was not the Liverpool consultant referred to in the case reported under this heading in our issue of Nov. 15 (p. 806).

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